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The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 93, No. 9 CHICAGO, ILLINOIS AUGUST 31, 1929

THE STATUS OF THE THERAPEUTICS OF IRRADIATED ERGOSTEROL

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Somewhat more than three years has passed since Windaus and Hess, as well as Rosenheim and Webster, reported the remarkable antirachitic activity of irradiated ergosterol. During this short interval a considerable literature has sprung up, regarding both the theoretical and the clinical aspects of this subject. It would be to no purpose to review the numerous papers that have been published abroad and in this country treating of the clinical value of this new preparation. A complete bibliography will be found in the recent articles by Karelitz,[1] by György[2] and by Wieland.[3]

All are agreed that irradiated ergosterol is an agent of exceptional potency and reliability in the prevention or the cure of rickets. The time is past for a discussion of this point. There are, however, several questions which demand consideration at the present time. One that has been raised repeatedly concerns the safety of this new therapeutic agent, more particularly whether there is any danger of its doing harm. A corollary of this question, and one which has been the subject of quite as much discussion, is that of the proper dosage of irradiated ergosterol. Both these aspects were considered provisionally in a paper published by us[4] about a year ago. At that time we concluded that "as yet we have not sufficient clinical experience to define its proper dosage. Furthermore, the various preparations cannot be evaluated, as they have not yet been assayed on the basis of the number of 'curative units (rat)' which they contain." It was added that "the amounts now recommended and employed are unnecessarily high," and that the time was not ripe to distribute this drug to the medical profession.

RESULTS OF EXPERIMENTS WITH VARIOUS PREPARATIONS OF ERGOSTEROL

During the past year we have been engaged with a further study of irradiated ergosterol, in the laboratory and the clinic. In the main, two preparations have been studied; an American product and a German product. It should be added that the manufacturers of the German preparation have realized that it was unnecessarily potent and have recently reduced its strength to about one-tenth the original. Although irradiated ergosterol has not been marketed in the United States, owing to uncertainties in regard to its dosage, it has been widely used in Germany, France and England, both in hospitals and in private practice. In this country its use has been restricted to investigative studies in numerous clinics throughout the country.

Beginning in October, a large group of infants was given either the American or the German preparation of irradiated ergosterol in various amounts, ranging from minimal doses to what might be considered generous amounts. The age of the infants ranged from about 3 to 9 months, and the medication was continued in many instances uninterruptedly from autumn until summer; in some it was begun during the course of the winter. However, in general, the duration of observation was long and embraced a period of several months.

Our results were well defined and can be summarized in a few words; it seems unnecessary, therefore, to consider them in detail or to reproduce the data in tabular form. Full term infants were protected from rickets, almost in every instance, except when the smaller amounts were given. The progress of every infant was followed in the usual way by means of direct clinical examinations, roentgenograms and analyses of the blood for its concentration of calcium and of inorganic phosphorus. In an occasional case, mild beading of the ribs, craniotabes or bowing of the legs developed. Of course the spectacular healing, for example, of craniotabes, which was brought about by large amounts of irradiated ergosterol, cannot be expected when much smaller amounts are given. In spite of partial failures, irradiated ergosterol must be regarded as one of the most remarkable of specifics. In therapeutics there is no such thing as an absolute or infallible specific; all fail to a certain extent occasionally. This is known to be true of quinine in its relation to malaria, of arsenic preparations in relation to syphilis and recurrent fever, and of all other specific remedies with which medicine is blessed.

It will be noted that emphasis has been laid on the success of treatment in infants that were born at full term. It is highly important that this distinction should be borne in mind, for it will be found, not infrequently, that preparations of irradiated ergosterol given in adequate doses will fail to protect rapidly growing premature infants. As will be brought out in the discussion of dosage, such babies require very large amounts of irradiated ergosterol, and even when this precaution is observed it may be found that rickets has not been entirely prevented.

1. Karelitz, Samuel: Activated Ergosterol in the Treatment of Rickets, Am. J. Dis. Child. **36:** 1108 (Dec.) 1928.
2. György, P.: Sind die bisher ueblichen Gaben von bestrahlten Ergosterin als ueberfluessig hoch zu bezeichnen? Klin. Wchnschr. **8:** 684 (April 9) 1929.
3. Wieland, E.: Vier Jahre indirekte Licht-therapie (mit bestrahlter Frisch- und Trockenmilch und verschiedener Ergosterinpraeparaten) bei Rachitis an der Basler Kinderklinik, Ztschr. f. Kinderh. **47:** 643, 1929.
4. Hess, A. F., and Lewis, J. M.: Clinical Experience with Irradiated Ergosterol, J. A. M. A. **91:** 783 (Sept. 15) 1928.

In some instances, bowlegs developed unaccompanied by other evidences of rickets toward the end of the first year of life. In view of the fact that the inorganic phosphate of the blood was found to be of normal concentration in several of these cases, it is probable that the clinical condition was that which, some years ago, was designated as "nonrachitic bowing of the legs." However, this experience indicates that even when mothers learn to give antirachitic therapy as a routine measure, bowing of the legs will not become an exceptional deformity.

During the past few years we have emphasized that rickets may develop in an infant in spite of the fact that the concentrations of inorganic phosphorus and of calcium in the blood are normal. Although we do not wish to discuss the subject in the present connection, it may be mentioned that our clinical and laboratory study has once again confirmed this point of view. It was found that when inadequate amounts of antirachitic agents, for example, of irradiated ergosterol or of irradiated dried milk, were given as preventive measures, and when rickets developed—as evinced by the roentgen and clinical examinations—concentrations of 6 mg. or more of inorganic phosphorus and of 10 mg. or more of calcium per hundred cubic centimeters, in other words normal value, were found in the blood.

As stated, our object in this paper is to bring forth a full discussion of the possible defects rather than of the evident advantages of irradiated ergosterol. In the spring of 1928, Kreitmair and Moll announced that toxic signs, associated with calcification of the vessels and other tissues, may be induced in rabbits by large doses of irradiated ergosterol. These experiments have been confirmed by numerous investigators, more recently by Hückel and Wenzel [5] of Göttingen and by Smith and Elvove [6] in this country. Too much has been made of these studies. The fact has been lost sight of that this picture of "hypervitaminosis" falls in the field of toxicology rather than in that of pharmacology and that this action does not imply a toxic effect of irradiated ergosterol when given in therapeutic dosage. These observations do indicate, however, the need of caution and of careful investigation. In our paper of last year, to which reference has been made, it was shown that the toxic phenomena which may be induced in rats by overwhelming amounts of irradiated ergosterol are associated with excessive concentration of calcium in the blood—concentrations of from 15 to 20 mg. per hundred cubic centimeters of serum instead of the normal 10 to 11 mg.

TABLE 1.—*Concentration of Calcium and Phosphorus in the Blood of Infants Given Antirachitic Agents for Long Periods, Including June and July*

Infant	Age at Onset, Months	Preparation Given	Amount (Daily)	Period	Calcium, Mg.	Inorganic Phosphorus, Mg.
1 W. O.	4	Irradiated ergosterol*	5 drops	Jan. -June	11.5	7.5
2 H. F.	2	Irradiated ergosterol	5 drops	Jan. -July	11.3	6.4
3 H. W.	2	Irradiated ergosterol	5 drops	Jan. -July	11.0	6.7
4 C. E.	2	Irradiated ergosterol	10 drops	March-July	11.4	6.2
5 R. B.	2	Irradiated ergosterol	10 drops	March-July	11.8	6.1
6 K. S.	4	Irradiated ergosterol	10 drops	March-July	11.0	5.6
7 W. M.	2	Irradiated ergosterol	10 drops	March-July	11.3	6.0
8 W. N.	4	Irradiated ergosterol	10 drops	March-July	11.8	6.0
9 F. A.	3	Irradiated ergosterol	10 drops	April -June	11.2	7.4
10 L. M.	4	Irradiated ergosterol	15 drops	April -July	11.8	6.4
11 G. J.	6	Irradiated ergosterol	15 drops	April -July	11.4	6.6
12 B. P.	8	Irradiated ergosterol	15 drops	April -July	11.1	7.0
13 S. O.	4	Irradiated ergosterol	15 drops	April -June	11.5	7.2
14 G. D.	7	Irradiated ergosterol	15 drops	April -June	10.7	7.6
15 H. S.	3	Dried milk	100 Gm.	March-June	11.4	6.8
16 L. L.	4½	Dried milk	100 Gm.	March-July	11.3	5.9
17 K. O.	2	Dried milk	100 Gm.	Jan. -June	11.3	6.6
18 L. A.	17	Cod liver oil	6 teaspoonfuls	Nov. -July	10.4	6.0
19 K. A.	18	Cod liver oil	6 teaspoonfuls	Nov. -July	11.8	6.3
20 P. L.	18	Cod liver oil	8 teaspoonfuls	Nov. -July	11.8	6.3
21 Y. B.	17	Cod liver oil	8 teaspoonfuls	Nov. -July	11.0	5.5

* One hundred times as potent as standard cod liver oil, 40 drops to the cubic centimeter.

Tests carried out during the course of the past year have confirmed these results. When excessive amounts of irradiated ergosterol are given, for example, when 1, 2 and 5 mg. is administered daily to a series of animals, the degrees of hypercalcemia will be found to aline themselves accordingly. It should not be forgotten that 1 mg. represents fully ten to twenty thousand times the minimal daily protective dose of irradiated ergosterol. A large series of tests was carried out to determine whether hypercalcemia is the equivalent of toxicity, whether the two phenomena bear a quantitative relationship to each other. On reviewing this group of experiments it would seem that in general there is a parallelism between the two phenomena. The parallelism is much more variable when different products are used than when varying amounts of the same preparation are given. It will be remembered that in the course of activating ergosterol by means of ultraviolet radiations a series of products are formed; that the sterol passes through various chemical phases and that the final product is a mixture rather than a photochemical entity. It is possible that the quantitative irregularities in toxicity may be the result of some of these intermediate products, but there is no experimental proof one way or the other. Harris and Moore [7] have shown that there is no difference in toxicity between "oil-irradiated" and "alcohol-irradiated" ergosterol, and, furthermore, that ergosterol in which the antirachitic factor had been destroyed by overirradiation was absolutely nontoxic.

In connection with a discussion of the effect of excessive amounts of irradiated ergosterol, we wish to point out that overdosage may lead to a withdrawal of inorganic salts from the skeleton. This was made evident in a series of animal experiments in which the ash of the bones was determined after 1 mg. or more of a highly active ergosterol had been given. In one instance, whereas the bones of the control rats contained about 52 per cent of ash, those which had received 1 mg. of the German irradiated ergosterol preparation for a period of fourteen days contained only 48 per cent; in a similar test, in which as much as 5 mg. daily of this preparation had been given, the bones of the control animals contained about 43 per cent of ash, compared to only 39 per cent in the treated animals. Other tests confirm the conclusion that the giving of excessive amounts of irradiated ergosterol may lead to a withdrawal of calcium and phosphorus

5. Hückel, R., and Wenzel, H.: Über die Wirkung des bestrahlten Ergosterins auf die Nierengefässe von Kaninchen, Arch. f. exper. Path. u. Pharmakol. **141**: 292 (May) 1929.

6. Smith, M. I., and Elvove, E.: The Action of Irradiated Ergosterol in the Rabbit, Pub. Health **44**: 1245 (May 24) 1929.

7. Harris, L. J., and Moore, T.: The Specificity of Vitamin D in Irradiated Ergosterol Poisoning: Part III. The Pathology of Hypervitaminosis D, Biochem. J. **23**: 261, 1929.

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from the bones, especially if the diet is deficient in these constituents. These results complement the metabolism experiments of Hottinger,[8] who found that very large amounts of irradiated ergosterol, when given to puppies, induced negative instead of positive balances of calcium and phosphorus. It should be added that excessive amounts of cod liver oil may likewise lead to a withdrawal of inorganic salts from the skeleton.

HYPERCALCEMIA

Hypercalcemia is the outstanding manifestation of the toxic reaction. This was shown in our previous paper and has been amply corroborated both in this country and abroad. In infants, and this is true also of animals, it is always accompanied and sometimes preceded by a decided failure of appetite. It is important that the practitioner should be cognizant of this early symptom of overdosage of irradiated ergosterol. Hypercalcemia may occur in infants when excessive amounts of irradiated ergosterol are given for prophylactic purposes but rarely comes about in the course of curative treatment, in other words, simultaneously with active rickets or tetany. However, these two conditions are not absolutely incompatible. For example, last year we had a rapidly growing premature infant in the institution who showed progressive rickets in spite of receiving large doses of irradiated ergosterol; the concentration of calcium in the serum was 13.6 mg. and that of inorganic phosphorus 4.2 mg.

TABLE 2.—*Determination in July of Calcium and Phosphorus Content in the Blood of Infants Not Given Antirachitic Agents*

Name	Age, Months	Date	Calcium, Mg.	Inorganic Phosphorus, Mg.
A. W.	4	7/22	11.25	6.5
R. L.	6	7/22	10.7	5.7
J. S.	2	7/22	11.3	6.3
S. P.	4½	7/22	10.7	5.8
R. W.	3	7/22	10.0	7.8
M. S.	5½	7/22	11.0	6.07

The induction of an excess of calcium in the blood is not distinctive of irradiated ergosterol but is simply a sign of overdosage of an antirachitic agent and may result from giving large amounts of cod liver oil. This reaction can readily be demonstrated in animals. If young rats are fed 300 mg. of cod liver oil daily, in other words, from thirty to forty times the minimal protective dose, they will be found to develop concentrations of calcium as high as from 14 to 15 mg. per hundred cubic centimeters of serum. A lesser amount of oil will suffice to induce mild hypercalcemia; in other words, to raise the level to about 12 mg. These doses are not high when compared with a milligram of irradiated ergosterol, which represents fully 10,000 times the minimal protective dose. The reason hypercalcemia rarely develops in infants as a result of cod liver oil medication is simply that one cannot give more than about from 6 to 8 teaspoonfuls daily. In the course of a considerable clinical experience we have noted only two instances in which the concentration in the serum rose above 12 mg. On the other hand, two infants that had received 6 teaspoonfuls of a potent oil daily for a period of eight months were found to have concentrations of only 10.4 and 11.0 mg., and two others that had received eight teaspoonfuls for the same period had 11.8 mg. per hundred cubic centimeters of serum. In all four of these cases the final blood analysis was made at the end of June.

8. Hottinger, A.: Untersuchungen über bestrahlten Ergosterin: V. Mitteilung Stoffwechselversuche, etc., Ztschr. f. Kinderh. **47**: 341, 1929.

This question of season raises a point that has not been considered in connection with hypercalcemia. Is there any danger that the ultraviolet rays of the sun may exert a supplementary action? Is it immaterial, from the standpoint of dosage, whether irradiated ergosterol is given during the winter or during the spring and summer months? To a large extent this question is theoretical rather than clinical, for it will be only under exceptional circumstances that irradiated ergosterol will be given to infants during the summer. However, it seemed of advantage to ascertain whether this new drug can be given or continued with safety during this season. In the course of about twenty-five analyses which were carried out during the months of June and July, none showed a concentration of calcium greater than 12 mg. per hundred cubic centimeters of blood, a degree of calcemia which, as far as we are aware, has no significance. In almost all instances concentrations had risen slightly since the spring and, as may be noted, were at the uppermost level. Figures somewhat above 11 mg. were not unusual; in fact, the average concentration may be stated to have been nearer 11 than 10 mg. In general, the conclusion seems warranted that, although there is little occasion for prescribing irradiated ergosterol at the season when effective heliotherapy is at our disposal, if it is indicated it may be given at this time without fear of hypercalcemia.

At one time we thought that irradiated ergosterol might tend to induce hypercalcemia because and when it is dissociated from cholesterol and fat, to which it is bound in nature. However, the fact that large amounts of cod liver oil were found to bring about hypercalcemia rendered this hypothesis untenable, as in this substance active ergosterol is intimately linked with cholesterol, fat and the fat-soluble vitamin A. Laboratory experiments in which cholesterol and fat were fed in conjunction with irradiated ergosterol substantiated this conclusion.

HYPERPHOSPHATEMIA

In our previous report it was pointed out that in some instances an excess of inorganic phosphate, in other words, hyperphosphatemia rather than hypercalcemia, developed as the result of giving irradiated ergosterol. As far as we have been able to judge, such increased concentrations of phosphate, ranging from 8 to 10 mg. per hundred cubic centimeters of blood, have no significance. This reaction is apt to occur a few weeks after the drug has been given. In the past year we have encountered three instances in which the inorganic phosphate was raised to this extent; all of them occurred from two to three weeks after irradiated ergosterol had been given for protective purposes. It is well to remember that there is a marked stabilizing action on the part of the body in regard to both the calcium and the phosphate concentrations in the blood and that, unless the stimulus is overpowering, the blood and the tissues tend gradually to regain their normal chemical state.

CLINICAL INDICATIONS

Our clinical experience with irradiated ergosterol has been confined almost entirely to rickets and tetany, but from time to time we have had the opportunity to give it in other conditions. Some years ago, one of us described a pathologic condition of the bones as "nonrachitic softening of the ribs in infants and children." This undue yielding of the thoracic wall is not uncommon and is often found in combination with a softening or flattening of the occipital part of the cranial vault. It is not a form of rickets, as it is accompanied by none

of the characteristic clinical, roentgenographic or chemical signs of this disorder. When irradiated ergosterol is given in this condition, it has seemed to bring about added firmness to the ribs, a result which we have repeatedly failed to accomplish by means of cod liver oil, elementary phosphorus or direct ultraviolet irradiation. It was used in only six cases of this kind.

We have had no opportunity to test the activity of irradiated ergosterol in osteomalacia. There is every reason to believe, however, that it should prove efficacious in this condition, which, in the classic case, is essentially adult rickets. At the present time there is danger of various abnormal conditions of the bones—some with high as well as some with low calcium in the serum—being classed as osteomalacia. Starlinger [9] and Hottinger [10] have reported favorable results with irradiated ergosterol in cases of osteomalacia of long standing which had resisted other therapy. It would seem as if the use of this concentrated therapeutic agent might be introduced with great benefit into a country such as India where osteomalacia is still rife among the female population, as the result of the observance of the system of "purdah." Perhaps it might be dispensed in the same way as quinine has been distributed in districts in Italy where malaria is endemic.

Irradiated ergosterol may be tried with caution in cases of Paget's disease. Our experience is too limited in this field to warrant any general expression of opinion as to its value. In general, a contraindication to its usage is marked endarteritis, which not infrequently is an accompaniment of this disorder.

With regard to the claims for irradiated ergosterol in the prevention or the healing of dental caries, in our opinion the main etiologic factor in dental caries is not rickets and therefore caries will not be eradicated by any antirachitic agent, however potent. Irradiated ergosterol may improve the calcification of the teeth if given during the stage of their development; in respect to the deciduous teeth this period would have to embrace prenatal life. Recently Weinmann [11] of Vienna published a short account of an investigation that is of interest in this connection. He showed that in rats it is possible by means of very large doses of irradiated ergosterol to induce a hypercalcification of fully developed teeth. In view of the tendency to prescribe irradiated ergosterol for clinical conditions of the most varied kind, we may state that we have failed to find it of value in the prevention or cure of respiratory infections or of anemia, in the healing of the ordinary fracture, or in the induction of growth.

DOSAGE

As brought out last year, the main difficulty in establishing a reliable dosage for irradiated ergosterol lies in the fact that the various preparations differ widely one from another and that there has been no concerted attempt at standardization. Biologic tests carried out during the past year have shown that four of the most widely used preparations—manufactured in Germany, the United States, France and England—bear the following ratios to one another: 2,500 to 11 to 40 to 14. That there should be such marked variations in potency between preparations is not surprising in view of the lack of uniformity in the original ergosterol, in the intensity of irradiation, in the solvents used, and in the type of irradiating equipment. A standardization on the basis of milligrams, as is resorted to commonly abroad, will only lead into new difficulties. For example, the product with a vitamin potency 2,500 times that of cod liver oil, as well as the one found to be only forty times as active, is stated to contain 10 mg. of ergosterol per cubic centimeter. Again, of the two French preparations, one was found by biologic test to be twenty times as potent as the other although, according to the label, it contains only twice the number of milligrams of ergosterol per cubic centimeter. The only way to make progress in this field so that irradiated ergosterol is rendered suitable for therapeutic use is to standardize preparations on the basis of animal tests.[12] Recently this course has been determined on by a number of manufacturers in the United States, who have decided to assay their preparations so that they will have a potency 100 times that of a high-grade standard cod liver oil. Our study has been carried out with a preparation of this titer and, as the result of clinical observations, the following dosage has been formulated: [13]

> Eight to ten drops a day as the prophylactic dose for infants who are growing at the normal rate. Premature and exceptionally rapid-growing infants must be considered as a separate group and dosage gaged according to a different scale. They will require at least 15 drops a day and even more should be given if signs of rickets develop. Hottinger has drawn a distinction between premature infants which weighed more and those which weighed less than 2 Kg. The latter group he was unable to protect satisfactorily against rickets by means of irradiated ergosterol medication. If loss of appetite or slight diarrhea should supervene, medication should be temporarily discontinued.
>
> For cure, 15 drops of this standardized irradiated ergosterol should be prescribed in cases of mild rickets and 20 drops for the moderate cases. Severe instances, such as are rarely met with, excepting in Italians and negroes, will require still larger amounts for a short period. This same higher dosage will probably be found necessary for cases of late rickets and for osteomalacia, which are notably refractory. When exceptionally large doses are given for prevention, it would seem of advantage to control medication by occasional estimations of both the calcium and the inorganic phosphorus content of the blood.
>
> No doubt these directions will have to be modified in the light of future experience. It is preferable that we shall have to increase rather than decrease the dosage. As there is a tendency for irradiated ergosterol to continue to exert its effect for a considerable period after it has been discontinued, it may be of advantage to give it interruptedly for prophylaxis or perhaps only a few times a week.

It may be in place to add a few words in regard to other irradiated products which are being advocated for the protection or cure of rickets. It was suggested, in 1927, in one of the early papers on irradiated sterols,[14] that activated cholesterol might be added to cod liver oil in order to fortify it and give it several times its original potency. Preparations of this kind, in which irradiated ergosterol is used, are being marketed; their strength is about five times that of cod liver oil of good quality. One of the advantages of such preparations is that they contain the fat-soluble vitamin A as

9. Starlinger, W.: Über die Beeinflussung des Verlaufes eines schweren Osteomalazie durch bestrahltes Ergosterin, Deutsche med. Wchnschr. **53**: 1553 (Sept. 9) 1927.

10. Hottinger, A.: Untersuchungen über bestrahltes Ergosterin, Ztschr. f. Kinderh. **44**: 282, 1927.

11. Weinmann, J.: Wirkung grosser Dosen Vigantol auf Knochen und Zaehne, Klin. Wchnschr. **8**: 841 (April 30) 1929.

12. Great care will have to be exercised in carrying out quantitative biologic tests of antirachitic agents. There are a large number of factors which will have to be standardized; for example, the age and weight and previous diet of the rats, and the duration of the test. One of the factors which has not been given sufficient attention is the uniformity of the experimental ration. The use of cereal grains in these rations introduces a necessarily variable factor, especially in the phosphorus content. In this way the calcium-phosphorus ratio of the diet may vary considerably and lead to quantitative differences in the assay of antirachitic substances.

13. Hess, A. F.: Rickets. Osteomalacia and Tetany, Philadelphia, Lea and Febiger, 1929.

14. Hess, A. F.: Antirachitic Activity of Irradiated Cholesterol, Ergosterol and Allied Substances, J. A. M. A. **89**: 337 (July 30) 1927.

well as the antirachitic vitamin. The presence of cod liver oil in the preparations would seem to militate greatly against their adoption on a large scale.

At the same time, it was stated that excellent clinical and laboratory results had been obtained with the use of irradiated yeast. Possibly this product might be suitable for countries in which the item of expense is the determining factor. It has been suggested that in Poland, where rickets is unusually widespread and severe, and where poverty is extreme, it may be practicable to distribute irradiated yeast on a large scale.

As is well known, both fluid and dried milk have been irradiated in order to endow them with antirachitic virtue. We have had no clinical experience with irradiated fluid milk, which is being dispensed in some of the large communities of Europe, notably Frankfort and Basel. Irradiated dried milk has, from the outset, seemed to be a valuable preparation. It has a definite antirachitic property which is not lost by aging, nor is its content of vitamins A and C essentially diminished during the course of activation. This product is of moderate potency and is suited for preventive rather than for curative purposes; it is not adequate in itself to protect premature infants. From our experience there appears to be little danger of hypercalcemia developing from the amount of irradiated dried milk which a baby normally consumes. The highest concentration which we have found has been 12.7 mg. The potency of irradiated milk will have to be carefully supervised and placed under control, as there is constant danger that owing to some technical irregularity the milk will be imperfectly activated.

Not only milk but cereals are being subjected to the ultraviolet rays. Irradiated cereal can play little or no rôle in the eradication of rickets. Rickets is a disorder of the first year of life, and during this period such small amounts of irradiated cereals can be fed as to render them inconsequent from a therapeutic point of view. Such a food may be regarded as an adjuvant to other antirachitic measures, and perhaps of value in later childhood when the requirement of the antirachitic factor has become greatly reduced.

CONCLUSIONS

Further clinical experience with preparations of irradiated ergosterol has shown that it is a specific for rickets, tetany and osteomalacia. As yet it has not been proved of definite value in other clinical conditions.

In the past year, a standard dosage has been established for the prevention and cure of rickets. Premature and exceptionally rapid-growing infants must be regarded as a separate group and dosage gaged according to a different scale. The basis of this standardization is a biologic estimation of antirachitic potency rather than a gravimetric assay of the irradiated ergosterol.

It has been found that, if the prescribed dosage is observed, neither toxic symptoms nor hypercalcemia need be feared. These phenomena seem to be entirely or almost entirely due to an excess of antirachitic action. Hypercalcemia can also be induced experimentally by giving undue amounts of cod liver oil.

Irradiated milk, especially dried milk, is likewise a valuable product in combating rickets and tetany, more especially in their prevention. Irradiated cereals will probably play no rôle in the control of rickets.

In view of the numerous technical difficulties involved in the course of activation, such biologic products as irradiated ergosterol and irradiated foods should be subjected to careful laboratory control.

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TOBACCO SMOKING

A CLINICAL STUDY *

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Ever since Sir Walter Raleigh's servant first saw his master smoking and poured a bucket of water over him to put out the fire, the habit of tobacco smoking has had enough metaphorical cold water poured over it to make Niagara Falls a mere brook by comparison. Among some recently discovered letters of John Adams,[1] second President of the United States, to Benjamin Waterhouse, then professor of physic at Harvard University, was one commending him for a pamphlet he had written on the harmful effects of tobacco. Mr. Adams confessed, however, that he had been using it himself for sixty years, but said, "I am unable to take into my mouth a morsel no larger than a Swan Shot without sensible and immediate injury. One quarter of the quantity I have used in some parts of my life, I fully believe would now kill me immediately." As he lived to the mature age of 91, it would seem that his fear of the weed was not wholly justified.

Three years ago, in preparing a paper on low blood pressure, I became interested in the effect of tobacco on the blood pressure, largely because of the different opinions expressed by competent authorities. In that paper [2] I said that, as to tobacco, opinions vary still more widely. Sir Lauder Brunton [3] is quoted as stating that "anybody who presents no signs of tuberculosis and every evidence of health otherwise, but who nevertheless carries a blood pressure of 100, is an excessive smoker in nineteen out of twenty cases." On the other hand Sir Humphry Rolleston,[3] regius professor of medicine at Cambridge University, asserts that smoking raises the blood pressure. The same view is taken by Osborne [4] of Yale, in his excellent monograph, "Disturbances of the Heart." So keen an observer as Riesman [5] says, "In hypertension I am opposed to the use of tobacco much more than I am to the use of alcohol." But Sir Clifford Allbutt,[3] who did not use tobacco himself, thought that the influence of tobacco in hypertension was negligible.

About tobacco, as well as alcohol, it seems hard for the most level-headed scientist to think without bias. For instance, a recent system of medicine [6] says:

> A long continued heavy use of tobacco produces . . . indigestion, anorexia, cardiac irregularity and palpitation . . . deafness, headache, giddiness, tremors, and other nervous symptoms. . . . The eye loses its vision for colors and complete blindness may result. The testicles atrophy and become discolored, and the ovary of the female habitué shrivels into a small kernel, hard and yellow.

If this last sentence were true, the majority of men would be impotent, and it might confidently be expected that the majority of the next generation of women would be sterile.

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* Read before the North Carolina State Medical Society, Greensboro, N. C., April 16, 1929.

1. Letters of John Adams, Atlantic Monthly, May, 1927, p. 612.
2. Johnson, W. M.: Low Blood Pressure, South. Med. & Surg. **89**: 1-5 (Jan.) 1927.
3. Something More on Tobacco, Therap. Gaz., October, 1926, pp. 717-718.
4. Osborne, O. T.: Disturbances of the Heart, ed. 3, Chicago, American Medical Association, p. 56.
5. Riesman, David: Are We Exaggerating the Dangers of High Blood Pressure? Pennsylvania M. J., December, 1914.
6. Saipus: Analytic Cyclopedia of Practical Medicine, ed. 10, Philadelphia, F. A. Davis Company **8**: 563-564.

In an effort to find out clinically, if possible, just what effect smoking tobacco has on the human body, especially on the blood pressure, I began recording the blood pressure, together with the age, height and weight, of all the white male nonsmokers I could find, and comparing them with a similar number of smokers. The only men I took for each group were above 20 years of age and, so far as I could judge, free from any acute disease, valvular heart trouble, syphilis, tuberculosis or deformity. After more than two years' effort, I have 150 in each group, with at least twenty in each decade from 20 to 60, and above 60.

As I have never smoked myself, and yet live in a city built primarily on the tobacco industry, I have at least some claims to impartiality. In making up my groups, I have endeavored to be as absolutely fair to both sides as possible. Only those were listed who smoked regularly or not at all. The man who smoked two or three times a week was not considered either way. Those who chewed but did not smoke were not included. The left arm was used for taking the blood pressure in every case, to obviate the possible variation between the two arms noted by some recent observers. The same instrument, a Tycos, repeatedly checked with a mercury instrument, was used, and the same individual, myself, took all the readings except a few made by Dr. Bennette Pool. He matched an equal number of smokers against nonsmokers, however, so that the general average should not be affected by the personal equation.

Blood Pressure in a Group of Smokers and Nonsmokers

	Smokers, Average						Nonsmokers, Average					
			Blood Pressure						Blood Pressure			
Age Group	Number	Age	Systolic	Diastolic	Height, Inches	Weight, Pounds	Number	Age	Systolic	Diastolic	Height, Inches	Weight, Pounds
20–29.....	30	24.6	120.83	73.73	69.83	155.06	37	24.64	121.91	73.83	69.78	152.62
30–39.....	38	34.34	123.79	77.21	68.34	160.10	38	34.13	129.57	76.15	69.31	162.21
40–49.....	36	43.69	128.22	79.94	69.86	174.94	27	42.88	125.73	81.81	69.37	170.74
50–59.....	24	53.95	135.92	83.84	68.61	165.34	24	53.75	134.95	81.37	69.54	166
60 +.....	20	68.85	143.5	81.30	69.25	166.65	24	70.62	154.95	86.5	67.79	156.5
All ages....	150	42.63	128.23	78.87	69.24	164.44	150	42.41	129.64	79.23	69.23	161.08

The results, by decades, are presented in the accompanying tabulation. From this table, it is hard to escape the conclusion that the effect of tobacco smoking on the blood pressure is practically negligible, except possibly in the group of men past 60. In these the average systolic pressure is nearly eleven points higher and the diastolic pressure five points higher in the nonsmokers than in the smokers. The average age is two years greater, however, which would account for some difference. The lower blood pressure in the smokers would suggest the possibility of some weakening of the myocardium after the prolonged use of tobacco—though, as the average age of these old men is practically the biblical limit, this could hardly be marked.

One odd feature about the table is the fact that the systolic pressure for the 30 to 39 group is slightly lower than for the 20 to 29 group. The difference is very slight, but one would naturally expect an increase. My own theory is that the older group included a much larger proportion of the victims of the severe influenza epidemic of 1918 and has since returned annually with steadily decreasing virulence.

Another result of my observations is to contradict the popular idea that smoking will keep one's weight down, and that smokers, as a class, are thinner than nonsmokers. In my series, the average weight of the smokers is slightly greater in every group but two, and the average weight of all the smokers is 164.4 against 161.08 for the nonsmokers. This upsets the old idea that "smoking keeps a man thin," and contradicts the advice recently broadcast to "reach for a cigaret instead of a sweet."

Another study I have made concerns the tobacco habit as an etiologic factor in angina pectoris. Practically all authorities take it for granted that tobacco is a potent cause of angina, and are unanimous in advising its withdrawal in such cases. For instance, Clendening[7] says "Tobacco particularly is an originator of attacks. Giving up its use alone may serve to banish attacks." Then he cites the case of one of his patients who had given up tobacco and remained well for some years, until he "decided to smoke a cigar one evening; two puffs induced an attack in which he died."

In order to determine, if possible, just what proportion of angina victims are smokers, I have been collecting records of all possible fatal cases of this disease among males, and dividing them according to each patient's tobacco habits. To Drs. William Allan and John Berry I am indebted for adding to this number. Altogether I have collected sixty fatal cases. I have purposely taken only fatal cases, to obviate the possible criticism that some heart attacks diagnosed anginal may have been pseudo-angina. If fatal, it may be assumed that they were genuine. I have not included women because the proportion of the women in the older generation who smoke is small.

Of these sixty patients, forty-two, or 70 per cent, were smokers, who died at an average age of 61.31 years; eighteen, or 30 per cent, were nonsmokers, whose average age was 62.5. As seven tenths of these patients were smokers, at first glance it would appear that tobacco does play a part in the etiology of the disease. In order to get some sort of control group for comparison, I chose the method of going through the telephone directory, and listing the first 200 men whose habits I knew. Of the 200, I found that 168, or 84 per cent, smoked. Then I asked friends in Charlotte, Greensboro, Raleigh and Wilmington to do the same thing. Of the thousand men thus tabulated, 818, or 81.8 per cent, smoked. When the proportion of smokers among angina victims, 70 per cent, is compared with the male population of the state in usual health, 81.8, it would seem that smoking confers a slight immunity against angina. I think, however, that the proportion of smokers is rather higher in the younger men, which would explain the apparently favorable showing made by the older men in the angina list. While figures are deceptive, it would seem that in this most distressing form of heart disease tobacco does not play the part of the villain it is usually reckoned to be.

There are individuals, however, in whom immoderate smoking seems to cause attacks of precordial distress which closely simulate angina pectoris. I have recently had under my care a man, aged 40, who was having frequent attacks of pain in the chest radiating down both arms but worse in the left arm, and who was entirely relieved within three months after giving up tobacco. This type of patient was ably discussed last year by Moschcowitz.[8]

7. Clendening, Logan: Modern Methods of Treatment, St. Louis, C. V. Mosby Company, 1924, p. 550.
8. Moschcowitz, Eli: Tobacco Angina Pectoris, J. A. M. A. **90**: 733 (March 10) 1928.

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One other observation which is contrary to that of most authorities concerns the act of smoking. The statement is often seen that the blood pressure rises immediately after smoking. A most plausible explanation for the smoking habit has been constructed on this belief. It is argued that when an individual once smokes, this rise of pressure produces an exhilarating effect. When the pressure falls, the feeling of depression that ensues demands another smoke to boost it again, and so a vicious circle is established.

On the contrary, in a series of twenty individuals tested, I found that five showed no change, and all the others showed a fall in systolic pressure of from 4 to 14 mm., and in diastolic pressure of from 2 to 12 mm. The average fall for the whole group was 4.9 systolic and 3.4 diastolic. The group included cigaret, pipe and cigar smokers, the form in which tobacco was used apparently making little difference in the results. When one considers that smoking in the average individual has a soothing effect, is it not natural to suppose that the relaxation produced would naturally lower the vasomotor tension and bring about a slightly lower blood pressure?

A phase of tobacco smoking worthy of more than passing interest concerns its effect on women, especially during pregnancy and lactation. Direful predictions and melancholy statements have been made about the effect of maternal smoking on the offspring. One physician [9] went so far as to object to the father's smoking in the presence of his wife during pregnancy and lactation lest she absorb enough nicotine to affect the baby unfavorably. My own observation is too limited to be worth much, but I know of at least five women who smoked freely through pregnancy and afterward, and yet nursed their babies successfully for several months. One was the mother of three splendid specimens. I do not wish to go on record in favor of tobacco as a galactagogue, but at least it does not kill the baby outright.

As to the gastro-intestinal tract, the effect on the novice of his first smoke is too well known to require a detailed description. The nausea, vomiting and sometimes diarrhea indicate a decidedly unpleasant effect on the digestive apparatus. There is an increase in the salivary and gastric secretions, and in the peristalsis of both the stomach and the intestine, until a tolerance is established. After tolerance is thoroughly established, however, so far as I can learn, the effect on the digestive apparatus is slight, if any. The belief is prevalent that it interferes with the appetite and thus keeps the weight down. The slightly greater average weight of the smokers in my series would disprove this.

Another popular belief is that tobacco has a laxative effect. Of fifty individuals questioned concerning this, thirty-five, or 70 per cent thought it had no effect; eleven, or 22 per cent, thought it was slightly laxative, and four, or 8 per cent, found it constipating. It is interesting that one of the men who found tobacco laxative also found that it stimulated his appetite.

Many authorities forbid the use of tobacco in the treatment of peptic ulcer, but none give a clear reason for its proscription. The possible objections to it are, first, that enough of the nicotine might be swallowed with the saliva to cause gastric irritation; second, that it stimulates gastric peristalsis; third, that the irritation of the mucous membrane of the mouth by the smoke might cause a reflex outpouring of gastric juice. The first objection is theoretical rather than practical. The last two might hold good in the case of a novice but not in the case of a seasoned smoker. On the other hand, most smokers tell me that the gnawing of an empty stomach is relieved by a smoke.

As to its effect on the nervous system, I am inclined to think that the average highly nervous individual smokes to excess because he is nervous, rather than that he is nervous because he smokes to excess. In the average individual the effect of a smoke seems to be more soothing than stimulating.

As a result of three years' clinical study of tobacco smoking—admitting all the ignorance possible of the laboratory side of the question—I am convinced that its chief effect is a local one, exerted on the mucous membrane of the pharynx, less frequently on the larynx and trachea, and exceptionally on the bronchi. Most inveterate smokers show a marked congestion of the pharynx, and many either clear their throat or cough habitually, regardless of the brand of tobacco smoked. That this irritation, however, seldom if ever affects the lungs, and that there is little foundation for the once popular belief that smoking predisposes to tuberculosis, is evidenced by the fact that, coincident with the tremendous increase in the use of smoking tobacco during the past ten or fifteen years, there has been an equally striking decrease in the occurrence of tuberculosis. An interesting observation made by Dr. John Berry [10] during the World War is further corroboration. Of 1,768 American soldiers sent to him in France for pulmonary physical disability, most of whom were tuberculous, 532, or a fraction more than 30 per cent, were nonsmokers. Assuming the present ratio of about 82 per cent smokers to have held good among the soldiers during the war—and I am assured it was no less than that—it is evident that tobacco played no part in the causation of pulmonary disability.

SUMMARY

1. In a series of 150 adult male smokers, the systolic blood pressure was 128.23, the diastolic 78.87. In the same number of nonsmokers, the average systolic pressure was 129.64, the diastolic 79.23. The average age was practically the same, 42.63 years for the smokers, 42.41 for the nonsmokers. The weight of the smokers was 164.44, of the nonsmokers 161.08. The height was the same.

2. Of sixty fatal cases of angina pectoris in males, forty-two, or 70 per cent, were in smokers; eighteen, or 30 per cent, in nonsmokers. As a control, of 1,000 adult males taken from telephone directories in five cities, 81.8 per cent were smokers.

3. In a series of twenty individuals tested, the blood pressure after smoking showed no change in five but dropped in fifteen. The average fall in blood pressure after smoking for the whole group was 4.9 systolic, 3.4 diastolic.

CONCLUSIONS

1. Tobacco smoking apparently has no permanent effect on the blood pressure.

2. There is no foundation for the popular belief that smoking decreases the weight of an individual.

3. It is doubtful whether tobacco plays a major part in the etiology of angina pectoris.

4. The act of smoking, if it affects blood pressure at all, reduces it temporarily.

5. The effect of tobacco smoking is chiefly local, exerted principally on the pharynx.

O'Hanlon Building.

9. Roller, B. F.: Tobacco, M. Times, June, 1917.

10. Berry, John: Personal communication to the author, April, 1929.

THE INTRAMUSCULAR INJECTION OF ADULT WHOLE BLOOD AS PROPHYLACTIC AGAINST MEASLES

WITH A REPORT ON THE LITERATURE

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There have been many reports [1] in this country and abroad on the efficacy of immune convalescent serum as a prophylactic measure against measles, but comparatively little is to be found in the literature concerning the protective value of adult whole blood from persons long recovered from the disease.

Karelitz and Levin [2] state that Degkwitz [3] was the first to use whole blood of adult donors as a protection against measles. Rietschel [4] also refers to the work of Degkwitz. Rietschel states that on one occasion in his private practice he injected a child on the third day after exposure to measles with whole blood from the mother (20 cc.). The child did not develop the disease, although constantly in contact with the patient who had the disease. Rietschel notes the difficulty of obtaining sufficient convalescent serum, especially for use in private practice, and he with Degkwitz and others recommends the use of serum from adults with a history positive for measles, provided the dosage is large. At least from 20 to 30 cc. of whole adult blood should be used for children from 2 to 3 years of age. Rietschel notes that he has not had the opportunity to try this method in any large number of cases. He reports three children in an institution, exposed to the disease, who were injected with 20 cc. of whole blood of adults all of whom had had measles. These children developed a very mild form of the disease and the measles exanthem was so slight that it would barely have been noticed if they had not been under close observation. In another dormitory in this institution where measles developed, six children were injected with adult blood or serum. Two of these escaped and four had mild measles.

Von Torday [5] reported 116 injections of adult serum, 20 cc. being given on the second to the sixth day following exposure, with failure to obtain protection in only twelve cases, and the measles that resulted in these cases was mild and attenuated.

Salomon [6] used adult serum (from 10 to 15 cc.) for prophylactic purposes in seventy-six infants, but in only half the cases was it successful. Kutter [7] used adult serum in fifteen children (from 6 to 15 cc.) on the fourth day of the incubation with only one failure. Gerlach [8] used it with success in doses of from 20 to 30 cc., the whole defibrinated mass being taken. Goebel [9] observed that inoculation with adult blood caused only one failure in twenty-two cases in which he tried it. Zingher [10] notes that a modified measles can be produced by the intramuscular injection of whole blood or serum from adults; 10 cc. of serum should be used and if whole blood this amount (20 cc.) should be doubled. Zingher does not report any cases in which this method was used. Debré [11] and his co-workers were successful in using adult whole blood. Hilsinger [12] injected 20 cc. of adult blood into sixty persons from 1 to 14 years of age. It was injected intragluteally, either directly or after 10 per cent of a 3 per cent sodium citrate solution was added. As a result, ten escaped, twenty had the disease mildly, eighteen had regular measles, five had the disease severely, six had the disease severely with complications, and one of the patients died. Kovács [13] reported thirty-nine cases, in which thirty-five of the patients escaped, three had abortive measles and one had definite but mild measles.

Karelitz and Levin [2] reported fourteen cases in which adult blood or serum was given for the prevention of measles. The whole blood was given intravenously, the serum by intramuscular injection. Of these fourteen patients, three developed measles, two of the cases being in modified form, and one a moderately severe attack with prolonged incubation.

Bivings [14] reports the use of adult blood serum (from 6 to 25 cc., depending on the age) for the prophylaxis against measles or the production of modified measles in children exposed to the disease. In his preliminary report he cites nine cases, three in which the disease was escaped and six in which it was mild. In a later series Bivings and Dickson [15] report that twenty-three children were given adult blood serum following definite exposure. Eleven of these developed a very mild form of the disease and twelve did not have any symptoms of measles.

Pasani-Casa [16] injected from 30 to 40 cc. of the whole blood for the control of an epidemic in the Padua pediatric clinic as well as in private practice. He used in addition the blood of older brothers and sisters who had previously had measles. His material included thirty-three cases; fifteen of the patients obtained complete protection, seven had abortive forms without eruption, ten had had extremely attenuated measles, and one had ordinary measles. There was no postmorbillar complication in any of the cases and no death. On the basis of this experience, he credits this method with evident practical value as it immunized completely or greatly attenuated a disease that may assume a grave course.

Zoepffel [17] reports eighteen children to whom whole blood was given in the incubation period, sixth to seventh day. Five of them did not contract measles, ten showed a modified form of the disease, one had moderately severe measles complicated by otitis media, and two developed the disease later and apparently from another exposure.

RESULTS OF IMMUNIZATION

The following report of the results obtained in the immunization of thirty patients, from 6 to 42 months of age, is submitted, fourteen from an institution, St.

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2. Karelitz, Samuel; and Levin, Samuel: **Measles Prophylaxis by the Use of Convalescent Serum, Adult Blood or Serum**, Am. J. Dis. Child. **33**: 408 (March) 1927.
3. Degkwitz, R.: Über Versuche mit Masernrekonvaleszentenserum, Ztschr. f. Kinderh. **25**: 134 (May) 1920; **27**: 171, 1920.
4. Rietschel: Measles Prophylaxis, Ztschr. f. Kinderh. **29**: 127 (June) 1921.
5. Von Torday, F.: Jahrb. f. Kinderh. **102**: 213 (June) 1923.
6. Salomon, F.: Die prophylaktische Injektion von normal Serum als Masernschutz, Deutsche med. Wchnschr. **49**: 1151 (Aug. 31) 1923.
7. Kutter, P.: Ztschr. f. Kinderh. **36**: 119, 1923.
8. Gerlach, H.: Über prophylaktische Schutzimpfung mit defibriertem Erwachsenenblut bei Masern, Monatschr. f. Kinderh. **28**: 236 (June) 1924.
9. Goebel: Erfahrungen mit Degkwitzschen Masernprophylaxe, Ztschr. f. Aerzt. Fortbild. **21**: 358, 1924.
10. Zingher, Abraham: **Convalescent Whole Blood, Plasma and Serum in the Prophylaxis of Measles**, J. A. M. A. **82**: 1180-1187 (April 12) 1924.
11. Debré, R.: Emploi du sang et du sérum d'adult ayant eu la rougeole autrefois, pour la prevention de cette maladie, Bull. et mém. Soc. med. d. hôp. de Paris **49**: 682 (May 8) 1925.
12. Hilsinger, W.: Erwachsenenblut-Einspritzungen zum Masernschutz, Arch. f. Kinderh. **76**: 211 (Aug.) 1925.
13. Kovacs, E.: Erfahrungen mit der Rietschelschen Masernprophylaxe, Deutsche med. Wchnschr. **51**: 1703 (Oct. 9) 1925.
14. Bivings, F. L.: Measles Prophylaxis by Means of Parents' Whole Blood Serum, South. M. J. **20**: 735 (Sept.) 1927.
15. Bivings, F. L., and Dickson, R. W.: Parental Whole Blood in Measles Control, Arch. Pediat. **44**: 629 (Oct.) 1927.
16. Pasani-Casa: Experiences with Immunity Prophylaxis Against Measles by Rietschel's Method, Riforma med. **43**: 714, 1927.
17. Zoepffel, H.: Comparative Results with Animal Measles Serum and the Serum of Adults Who Had Had Measles, München. med. Wchnschr. **74**: 150 (Jan.) 1927.

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Faiths House, Tarrytown, N. Y., twelve from a hospital service, Fifth Avenue Hospital, and four from private practice.

The institutional patients were all exposed on the same day and each was given from 25 to 30 cc. of adult whole blood from donors whose Wassermann reactions were negative and who had had measles from two to ten years previously.

The results, it appears, were quite as significant as those heretofore reported from the use of convalescent serum and consistent with those reported before with the use of adult whole blood. The blood, after removal from the donor, was injected (immediately) intragluteally into the patient. Because of the quantity of blood, it was necessary to use both buttocks. The children did not suffer any apparent indisposition from the injections and there were no untoward sequelae.

All of the fourteen institutional patients were normal and healthy children.

The first group, i. e., those injected on the fourth day following exposure, comprises eight children:

Three of them did not develop any recognized symptom of measles. Their ages were 3, 2½ and 2 years, respectively.

Four of them presented very mild and atypical measles. Of these, three were 18 months of age and one was 2½ years. The eruptions were faint, irregularly distributed and not characteristic. Koplik's spots were not present. None of the catarrhal symptoms which accompany the disease were present. In none did the temperatures remain elevated longer than thirty-six hours, and in only one instance did the temperature rise above 102. One of these patients did not contract measles until twenty-two days after the whole blood was given and twenty-six days after the known initial exposure. This patient possibly contracted the disease from a subsequent exposure, although the reports in the literature indicate that a prolonged incubation period is sometimes observed following the administration of blood from adults or convalescents.

One of the group had a typical eruption, Koplik's spots and catarrhal symptoms. The temperature fluctuated between 99 and 102 F. and persisted for sixty hours.

There are six in the second group who received their injections of whole blood on the fifth day following the exposure:

One, an infant of 9 months escaped any recognized symptoms of measles.

The others presented the same picture as the previous group; i. e., mild, atypical measles, without Koplik's spots. Three of them had very mild catarrhal symptoms and two of them had no catarrhal symptoms. The ages were 2½ years, 2 years, 20 months, 13 months and 13 months, respectively.

It is noteworthy that one child developed the eruption on the fifteenth day, two on the seventeenth day, five on the eighteenth day, one on the nineteenth day and one on the twenty-seventh day following the known initial exposure. In one the duration of the eruption was two days, in three it was present three days, in four four days, in one five days and in one six days, the latter being one child of the series with a typical eruption and Koplik's spots. There was only one child in whom the temperature remained elevated for four consecutive days, a patient whose eruption was atypical and who did not have any catarrhal symptoms or Koplik's spots. There was no instance in which the course could be called typical for the disease as it is recognized. There were no complications. The eruptions were first discovered while the children were receiving their routine alpine light exposures. They might have escaped us otherwise.

The hospital patients comprise twelve children ranging from six months to 42 months of age, with exposures in a ward to patients in the catarrhal stage of the disease. Each was given from 25 to 30 cc. of adult whole blood on the second to the fourth day following the known initial exposure. Two children received blood on the day of exposure and escaped the disease completely. The donors were physicians on the house staff and parents or relatives who had had measles from twenty to twenty-five years previously.

Five had no recognized symptom of measles. Their ages were 3½ years, 3½ years, 2 years, 9 months and 9 months, respectively.

Seven had atypical measles. Their ages were 42 months, 26 months, 25 months, 22 months, 16 months, 16 months and six months, respectively. The eruptions in five were faint and irregularly distributed. In five there were mild catarrhal symptoms and in two there were no catarrhal symptoms. In the child of 42 months the eruption appeared twenty-five days after the known initial exposure; it was said to be fairly typical without much rise in temperature, and the child was not thought to be sick enough to take to his bed. He was home at the time he contracted measles. In one the temperature rose to 102 F. on the thirteenth day following the known initial exposure, persisted sixty hours, and never rose higher than 102.6. In one the temperature became elevated eighteen days after the initial exposure, was fluctuating in type, and never rose higher than 102.4 but persisted for five days. In one the temperature rose to 101 on the fifteenth day, never rose higher than 101.8, and persisted thirty-six hours. One, the infant of 6 months, had a rise in temperature on the thirteenth day following the known initial exposure to 102, which persisted for three days and was never higher than 102.6. This child had catarrhal symptoms, but no eruption was ever visible.

In the two of this series without catarrhal symptoms, one had a rise in temperature on the fifteenth day following the known initial exposure to 100.4, was never higher than 101.2 and persisted twenty hours. The eruption in this instance was present one day. In the other child without catarrhal symptoms, a slight eruption was present over the body for one day and made its appearance on the seventeenth day following the known initial exposure. There was no rise in temperature in this instance. There were no complications in these seven patients. There were no Koplik's spots.

The private patients comprise four children:

S. H., aged 2 years, who was given 20 cc. of his father's whole blood, two days after exposure, showed an elevation of temperature to 101 on the fourteenth day following exposure and thereafter the temperature remained normal. It is not known whether he had Koplik's spots. He had no catarrhal symptoms and there were no complications. The child had had an intensive outdoor exposure for one day to a child in the catarrhal stage of the disease. The father had had measles twenty years previously.

A. K., aged 20 months, was given 20 cc. of whole blood from an aunt who had had measles about twenty years previously. The blood was given on the sixth day following exposure, and although the child was in frequent contact with an older sister ill with the disease she did not develop any recognized symptom of measles.

R. K., aged 3 years, received 20 cc. of whole blood from an uncle who had had measles at least twenty years previously. The blood was given on the sixth day following the exposure, and although in frequent contact with his older sister throughout her measles he failed to develop any clinical evidence of the disease.

R. R., aged 20 months, received 10 cc. of whole blood from a 10 year old cousin, three months convalescent from measles, and an additional 20 cc. from an uncle who had had measles 20 years previously. The blood was given late on the sixth day following exposure. The child did not develop any recognized symptoms of measles. His exposure was several hours indoors to a patient in the catarrhal stage of the disease.

SUMMARY AND CONCLUSIONS

In a series of thirty patients, from 6 months to 42 months of age, from 20 to 30 cc. of whole blood of persons recovered from measles, two to twenty-five years previously (except in one case in which 10 cc.

was used from a cousin three months' convalescent), was given intramuscularly. This blood, which was given within the first seven days following exposure, completely protected twelve patients, so far as escape of measles is proof of protection, and was followed in nine by a modified and attenuated measles without catarrhal symptoms. In eight patients, mild catarrhal symptoms were present. One child had measles of moderate severity and she was the only one of the thirty known to have had Koplik's spots and a typical eruption. In the others in whom eruptions were present they were not characteristic. There was a distinct modification of the temperature except in two instances. There seems to have been a prolongation of the incubation in all except possibly four. There were no complications.

It would seem that whole blood from adults long recovered from measles is an effective measure against measles. The report on the results in thirty patients is suggestive and other similar reports in the literature, incorporated in this paper, lend corroborative evidence of the validity of the measure as a weapon to use to minimize the dangers from measles.

It might be particularly efficacious for institutions where many cross-infections are often to be found when the serum from recently convalescent patients is not readily available, or in the age group under 5 years, in which 90 per cent of the deaths from measles occur, or in the weak and debilitated in whom the presence of measles might determine a fatal issue. If the disease could be prevented or modified in these instances, many lives might be saved and the mortality from measles appreciably reduced.

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CROSSING THE LEGS AS A FACTOR IN THE PRODUCTION OF PERONEAL PALSY *

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Nature designed wisely when she protected important and slowly healing structures, such as nerves and blood vessels, by placing them in sheltered situations. A few of the major nerves, such as the facial, the ulnar, the radial and the peroneal, however, come close to the surface. To be sure, this exposure occurs only for short distances, but it explains in part the frequency with which these nerves are injured. In this paper I shall consider a possible and apparently neglected factor in the production of paralysis of the peroneal nerve.

During the development of the hind limb, a rather extensive rotation carries the peroneal nerve laterad and ventrad, over the head of the fibula. In lower animals, it is still protected by the relative length of the tarsus and the usual position of flexion of the hind limbs.

Observant clinicians have called attention to various forms of occupational palsies, but man is not always occupied, and when he is not, he enjoys the unique privilege of crossing his knees, with the result that the peroneal nerve is often wedged between the head of the ipsolateral fibula and the external condyle of the heterolateral femur and the heterolateral patella.

Cases of peroneal paralysis due to pressure, such as that from a cast and that incident to position on the operating table or to the squatting position of agriculturists, coal pickers and so forth, have been described. I have seen a patient who suffered severe and longstanding paralysis of both sciatic nerves because he dropped into a drunken sleep while sitting on an open barrel, into which he gradually settled. Gerhardt [1] has described a case in which peroneal palsy developed in a man who had fallen asleep with his knees crossed. With this exception, so far as I know, pressure from crossing the knees has been neglected as a cause of paralysis.

Paget [2] called attention to the fact that paralysis of the peroneal nerve may come on during convalescence from typhoid. The usual explanation of the cases to which I call attention here appears to be that some toxin or infection is at work. Doubtless this may be the sole cause in many cases; however, in the cases selected for this study, it would be hard to escape the inference that crossing the knees played a major part in the etiology of the condition. I shall attempt to show that loss in weight and arteriosclerosis may be important requisites. It is during the convalescent period that patients often sit about, and it was usually during this phase of my patients' illnesses that the peroneal palsy developed and the added factor of pressure incident to crossing the knees appeared to come into play. Experience with a number of such cases, reports of twenty-seven of which are readily available, served to direct attention to this relatively unimportant but interesting and frequent condition.

ILLUSTRATIVE CASES

Most of these patients were seen in the hospitals when they were recovering from illnesses, in many of which operation had been required. Complete general and neurologic examinations were made in all cases. A few typical cases follow in abstract.

CASE 1.—A farmer, aged 42, weighing 225 pounds (102 Kg.), came to the Mayo Clinic because of attacks of abdominal distress. He had been induced to take up a special diet, which consisted largely of carrots. As a result, he had lost 50 pounds (22.7 Kg.). Three weeks before, he had been an interested spectator at a ball game, where he had sat with the left leg crossed over the right. When he left the stand, his left foot felt numb and "flopped." Because of this, and because of alarm over his yellow color, he sought advice.

Examination disclosed chronic appendicitis, carotinemia, sclerosis of the retinal arteries of the hypertension type but normal blood pressure, and rather marked weakness and subjective numbness in the distribution of the left peroneal nerve. Reexamination a year later revealed that the palsy had disappeared completely. The systolic blood pressure was 154 mm. of mercury and the diastolic pressure was 96.

CASE 2.—A stenographer, aged 41, came to the clinic because of an infection of the left antrum, and right foot drop. She had a "nice job," which required three hours of work each day. In her leisure hours she sat about much of the time with her legs crossed, always the right over the left. Examination disclosed infection of the left antrum and marked motor weakness and slight sensory impairment in the field of the right peroneal nerve.

CASE 3.—An auctioneer, aged 52, was found on examination to be suffering from glomerular nephritis. The systolic blood pressure was 238, and the diastolic 118. During the previous two years he had lost 52 pounds (23.6 Kg.). While under observation, he noted that within three days' time both feet began to flop in walking. He feared that he had locomotor ataxia. Examination disclosed a moderate degree of sensory and motor paralysis of both peroneal nerves. He had been permitted to leave the hospital and had spent the greater part of the three previous days sitting on a bench in front of the

* From the Section on Neurology, the Mayo Clinic.

1. Gerhardt, quoted by Oppenheim, Hermann: Lehrbuch der Nervenkrankheiten, Berlin, S. Karger, 1923.
2. Paget, James: On Some of the Sequels of Typhoid Fever, St. Bartholomew's Hosp. Rep. **12**: 1-4, 1876.

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hospital, watching the traffic. He said that he had crossed his legs most of the time while thus engaged. Spontaneous recovery followed in due course of time.

CASE 4.—An electrician, aged 55, who had taken alcohol regularly for years, came to the clinic because he "did not feel well." After the death of his wife he had become depressed, had sat around a great deal, had worried about his finances and his health, had slept poorly, and had lost 35 pounds (16 Kg.). A diagnosis was made of depression, largely reactive, mild cerebral arteriosclerosis, and slight motor and sensory palsy of the peroneal nerve. He was in the habit of crossing the right leg over the left, and it was the right peroneal nerve that showed the involvement.

CASE 5.—A blacksmith, aged 55, came to the clinic because of paralysis of the right foot. One week before he had been at a wake, where he had sat through most of the night and, as was his habit, frequently crossed the right leg over the left. Before he left the house of his departed friend, he was completely incapable of dorsiflexion of the right foot. The palsy was moderate in degree, and he was recovering from it rapidly. There was no impairment of sensation.

CASE 6.—A professional golfer, aged 42, presented himself because of foot drop on the left side. He had recently spent an entire night at a poker party, during which much whisky had been consumed. At dawn he had fallen asleep, resting his head on the table. When he had awakened, he found that the left leg was crossed over the right and the left foot was partially paralyzed. Examination disclosed palsy of the left peroneal nerve, moderate for power, slight for sensation. A cornified area over the head of the left fibula was also observed, the result of crossing the left leg over its fellow for much of the time.

CASE 7.—A jeweler, aged 62, had lost weight with great rapidity. He had been so heavy that for years he had been unable to cross his knees, but he had discovered that now he could do so and enjoyed it thoroughly. Examination disclosed an exophthalmic goiter of rather severe grade, and slight weakness of the dorsiflexors of the right foot, with subjective numbness over the dorsum of this foot. Following thyroidectomy his condition improved rapidly. A letter received subsequently stated that he had recovered his health completely and that power in the foot had returned to normal.

ANALYSIS OF SERIES

Although the condition is more common than the series of only twenty-seven readily available cases would indicate, it is sufficiently large to attract attention to certain interesting features. The first point is that there are only three women in the group. The reason for this is not clear. Assuming that women do not have the habit of crossing their legs so deeply ingrained as men, and it is doubtful whether this assumption would be supported by the facts, it seems unlikely that this would suffice to explain why this form of paralysis is eight times more common in men than in women. Our files show that multiple peripheral neuritis, of infectious origin, is about two and a third times as common in men as in women. Whatever the exact figure may be, the predominance of most types of neuritis in the male certainly does not present this great discrepancy in the sexes. Alcoholism is a factor in only three males and does not explain the situation. Possibly the greater padding of fat in women may contribute to the protection of their peroneal nerves in them.

Another factor that appears to have some bearing on the incidence of this group of peroneal palsies is the age of the patient. The youngest patient was aged 32 years; however, the average age was 51. Lapinsky has stressed the significance of circulatory disturbances in the production of degenerative changes in the peripheral nerves, but his work has not received the attention it seems to merit. Senility and arteriosclerosis may be causes of neuritis, and these factors evidently contribute to "crossed leg palsy."

Loss of weight is another prominent feature. In sixteen of the cases the loss of weight averaged 34 pounds (15.4 Kg.). Loss of fat undoubtedly deprives the peroneal nerve of an element of protection.

It is difficult to determine to what extent infection may be present. In at least eight cases of this group, four of cholecystitis, it may be presumed that infection existed.

Alcoholism always receives prominent mention in any discussion of the etiology of neuritis. In this group the use of alcohol was absent or minimal, except in three cases. The palsies in two of these cases were on the left and came on in the course of poker games, during which each of the patients recalled having had the left leg crossed over the right for long periods of time.

That three of these patients suffered from diabetes will at once arouse suspicion, for peripheral neuritis is particularly common in diabetes. The diabetes or, what seems more likely, the arteriosclerosis associated with this disease, probably contributes to the development of the palsy. However, the clinical picture noted in these cases is unlike that of diabetic neuritis: the condition is entirely painless; the achilles tendon reflexes are preserved; the involvement is strictly limited to the peroneal nerve, and the relationship to crossing of the legs is definite. Wilder [3] has told me that foot drop in diabetes is much much common in men than in women, which in itself is suggestive, in view of the sex incidence mentioned. There is a great deal of clinical and pathologic evidence which indicates that diabetic neuritis is not toxic in origin but that it probably has a vascular basis.[4] It is possible that the foot drop so often noted in elderly patients with diabetes may in many instances be determined by the additional factor of pressure incident to crossing the legs.

A striking fact is that pernicious anemia is not represented in this list. It is known that the nerves of these patients are frequently injured, as was shown in the excellent study of Hamilton and Nixon,[5] and that their illness leads to inactivity. They usually suffer little loss in weight, unlike patients suffering from diabetes; this may protect them from the added disability of peroneal palsy.

Exophthalmic goiter was present in four cases. Except for the facts that these patients are forced to inactivity, usually lose greatly in weight, and commonly exhibit rather striking myasthenia, I cannot explain this prominent representation.

Two patients were suffering from depression. Here the ages, the inactivity, the loss in weight (35 and 26 pounds [16 and 12 Kg.], respectively), and possibly the little understood but suspected depression in the somatic field would contribute to the development of neuritis from pressure.

As might be expected, "crossed leg palsy" may be bilateral, and was bilateral in five of the twenty-seven cases. In the twenty-two remaining cases it occurred on the left side in thirteen, and on the right side in nine. In surgical cases it appeared more frequently before operation than after, regardless of the type of operation and of the presence of infection.

3. Wilder, R. M.: Personal communication to the author.
4. Woltman, H. W., and Wilder, R. M.: Pathologic Changes of Spinal Cords and Peripheral Nerves in Diabetes Mellitus, Arch. Int. Med., to be published.
5. Hamilton, A. S., and Nixon, C. E.: Sensory Changes in the Subacute Combined Degeneration of Pernicious Anemia, Arch. Neurol. & Psychiat. **6**: 1-31 (July) 1921.

TREATMENT

The treatment of this form of neuritis need not be given much consideration, since spontaneous recovery may be expected. Obviously, the patient should be cautioned against crossing the knees. Heat applied locally, and massage, may be employed; when the palsy proves inconvenient or introduces a hazard in walking (as it may when, during the descent of a stairway, the patient inadvertently sets the foot too far forward and catches the heel on the step), a right angle catch brace may be provided.

SUMMARY

In the consideration of paralysis of the peroneal nerve, pressure incident to crossing the legs has been neglected as a cause. In a small series of twenty-seven cases, it was found to occur eight times as often in men as in women. It usually does not appear before the fourth or fifth decades of life and is seen most frequently in patients who are forced into inactivity by illness and who have lost considerable weight. It may be regarded as one of several factors productive of neuritis, existent in the same patient. Spontaneous recovery is the rule.

ANTERIOR PITUITARY HORMONE IN THE BLOOD OF WOMEN WITH OVARIAN DEFICIENCY *

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The recent development of methods to determine the presence of the hormone (or hormones) of the anterior lobe of the hypophysis in the blood or urine of patients has opened a new field of study which may prove of much clinical assistance in the diagnosis and treatment of certain endocrine disturbances. In a previous communication [1] the results of tests for the presence of anterior pituitary hormone in the blood of pregnant women were given, and attention was directed to a number of positive changes following an operative or radiation castration. The present report deals with the study of a small series of patients with (1) a total extirpation of the ovaries, (2) a radiation castration, (3) a functional amenorrhea, or (4) irregular menstruation.

The method used in this investigation is based on the "pregnancy test" of Zondek and Aschheim,[2] and consists in a microscopic study of the changes seen in the ovaries of immature white mice in which estrus has resulted following the injection of from 3 to 5 cc. of blood serum from the patient to be examined. The conditions which indicate the presence of anterior pituitary hormone are grouped into three categories by Zondek and Aschheim, as follows:

Reaction I (the "ovulation" reaction): The ovaries show the presence of normal ripening follicles, while if autopsy is delayed normal corpora lutea are seen and ova may be found in the fallopian tubes. This feature of the reaction corresponds to the results that are obtained from the implantation of fresh anterior pituitary gland tissue into immature white mice (Smith and Engle; [3] Zondek and Aschheim [4]), and to the effect of the "gonad-stimulating hormone" described by Evans and Simpson.[5]

In their test, Zondek and Aschheim insist that the occurrence of this reaction alone is not sufficient for the diagnosis of pregnancy, since they found it following the injection of urine from patients with endocrine disturbances, in three out of forty-two cases of functional amenorrhea, in seven cases of genital carcinoma, and in two cases of severe pelvic inflammation. They failed to find it in three women who had had bilateral oophorectomies. Ehrhardt [6] obtained this result from the urine of patients with functional amenorrhea, endocrine disturbances, and following total extirpation of the ovaries. In my previous study, the blood serum of eight patients with normal pregnancies gave this reaction alone.

Reaction II (the "hemorrhagic cyst" reaction): The ovaries grossly show the presence of fine reddish dots (Blutpunkte), which correspond to hemorrhages into normal and abnormal follicles, and are apparently due to the intense congestion set up by the hormone.

Reaction III (the "luteinization" reaction): There is a process of luteinization of the cells of follicle cysts, and the formation of abnormal structures resembling corpora lutea in which ovulation has not occurred and the ovum remains imprisoned. This phenomenon was first described by Evans and Long [7] and may be produced by the "growth-stimulating" hormone of the anterior hypophysis.[5] Zondek and Aschheim consider that reactions II or III must be present in order that pregnancy may be diagnosed from the urine of a patient. As was previously reported,[1] reaction III with or without I or II was found in the blood in twenty-seven of forty-eight patients with normal pregnancies.

RESULTS

Total Extirpation of the Ovaries.—The presence of anterior pituitary hormone was demonstrated in the blood of twelve of nineteen patients who had had a previous bilateral oophorectomy (in most instances for extensive pelvic inflammation). Of these, six were over 40, but none had passed the menopause at the time of operation. The interval between the time of the operation and the time of the examination was eight, nine, fourteen, twenty-eight, thirty-three, forty-five and fifty-six days, and two, four, seven, eight and thirteen years, respectively. In one case the test was negative on the sixteenth day after operation but became strongly positive on the fifty-sixth, and another negative on the twenty-seventh was positive on the forty-fifth day. Reaction I was present in all specimens. Reaction II appeared twice, and reaction II plus reaction III occurred once, but in none of these were they strongly marked.

In seven cases there were changes in the mouse ovaries and estrus was not induced. Three of the patients were women over 40, and in all but two the blood was obtained within one month after operation. In one instance the examination was done three times over a period of two months following an extensive

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1. Fluhmann, C. F.: Anterior Pituitary Hormone in the Blood During Pregnancy, J. A. M. A. **92**: 1744 (May 25) 1929.

2. Aschheim, S., and Zondek, B.: Die Schwangerschaftsdiagnose aus dem Harn durch Nachweis des Hypophysenvorderlappenhormons, Klin. Wchnschr. **7**: 1404 (July 22) 1928; **7**: 1453 (July 29) 1928.

3. Smith, P. E., and Engle, E. T.: Experimental Evidence Regarding the Rôle of the Anterior Pituitary in the Development and Regulation of the Genital System, Am. J. Anat. **40**: 159 (Nov. 15) 1927.

4. Zondek, B., and Aschheim, S.: Das Hormone des Hypophysenvorderlappens, Klin. Wchnschr. **6**: 248 (Feb. 5) 1927.

5. Evans, H. M., and Simpson, M. E.: Antagonism of Growth and Sex Hormones of the Anterior Hypophysis, J. A. M. A. **91**: 1337 (Nov. 3) 1928.

6. Ehrhardt, C.: Zondek-Aschheim Reaktion, Münch. med. Wchnschr. **76**: 82 (Jan. 11) 1929; Quoted by Seitz, L.: Biologie der Placenta: Pathologischer Teil, Arch. f. Gynäk. **137**: 585 (April 30) 1929.

7. Evans, H. M., and Long, J. A.: The Effect of the Anterior Lobe Administered Intraperitoneally upon Growth, Maturity and Estrus Cycles of the Rat, Anat. Rec. **21**: 62, 1921.

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Wertheim hysterectomy for cancer of the cervix uteri, and in another the specimen was taken twenty years after operation.

2. *Radiation Castration.*—This group includes five patients, four of whom were given large doses of radium for a malignant growth of the cervix uteri.[8] In each of these four cases the examination of the blood was positive in from three to ten months after treatment, although in two instances it had been found negative prior to the irradiation. Reaction I appeared three times, and a combination of reactions II and III once. These patients were under 40. The fifth had been sterilized by means of x-rays two and one-half years before examination, but the blood in this case proved negative.

3. *Functional Amenorrhea.*—Seventeen patients complaining of longer or shorter periods of amenorrhea have been examined, and a positive test was found six times. All but one were under 40 years of age, and the duration of the symptom varied from seven weeks to three years. Reaction I was present alone in two cases, while reaction III (with or without reactions I or II) occurred four times. The latter feature is of importance, since reaction III is a factor on which the diagnosis of pregnancy supposedly depends.

4. *Irregular Menstruation.*—This group is not as definite as the previous one, owing to the small number of patients concerned. Five women complaining of irregularities in the occurrence of their menses were examined, and in three the blood gave a positive reaction I.

COMMENT

The occurrence of large amounts of anterior pituitary hormone in the blood following extirpation of the ovaries is in keeping with the castration hypertrophy of this gland which has been observed in women by a number of authors (Tandler and Gross,[9] Kon,[10] Kolde[11] and Rössle[12]). Rössle found that the histologic changes accompanying this enlargement were not necessarily present in all cases, and that although a considerable length of time must elapse before their appearance, in some instances they could be observed as early as four or five days after castration. Assuming that there is a relationship between these histologic modifications of the anterior lobe and the presence of large amounts of the hormone in the blood, his observations would account for the negative results in some of the patients whose blood was examined within one month and also for the positive results as early as eight and nine days after operation. Further evidence of the increased activity of the anterior hypophysis following castration is also shown by the implantation experiments of Engle[13] and Evans and Simpson,[14] who found that the anterior pituitary gland tissue from gonadectomized rats is much more potent to stimulate the ovary of immature animals than that from normal controls.

The group of patients with amenorrhea is of particular interest because the exact etiology of this condition, as well as the intricate hypophysis-thyroid-ovary interrelationship, is not clearly understood. It is well known that insufficiency of the anterior pituitary body may lead to amenorrhea (hypophysectomy experiments), but, on the other hand, it is possible that the same symptom may supervene as a result of an overactivity of the gland (inhibition of estrus in rats by the administration of comparatively large amounts of the extract used by Evans and Long), and it seems probable that as a result of hyperfunction an excessive quantity of the hormone circulates in the blood. An analogous phenomenon is described by some experimenters (Frank and Goldberger,[15] Zondek[16] and Siebke[17]), who find large amounts of ovarian hormone in the blood in certain cases of amenorrhea. Frank and Goldberger, however, have pointed out that this occurs at cyclic intervals, and the question thus arises as to whether this is also the case with the hormone of the anterior hypophysis, and also whether there is any relation between the amenorrheic patients with ovarian hormone and those with anterior pituitary hormone in the blood.[18] Observations to date are insufficient to warrant making any statement regarding this point.

In four of the six patients with amenorrhea, the "luteinization" reaction (reaction III) was called forth in the ovaries of the mouse, so that the finding is not comparable to that occurring following castration as much as to that present during pregnancy when there is also an absence of menstruation. It would be of considerable importance to know whether in these cases the patients' ovaries show abnormal "luteinization," such as occurs in the laboratory animal. Wagner[19] has recently described similar changes in the ovaries of a patient with a hypophyseal tumor, and Aschheim[20] has suggested the possible connection between the anterior pituitary body and the lutein cysts accompanying hydatidiform mole.

Many more observations are necessary before the value of the finding of anterior pituitary hormone in the blood of patients with amenorrhea and other menstrual disturbances can be determined, but it would seem that the Zondek-Aschheim test may prove of considerable clinical assistance besides its use for the diagnosis of early pregnancy.

CONCLUSIONS

The process of ovulation which is set up in the ovaries of an immature white mouse by the implantation of anterior pituitary gland tissue has also been elicited by the injection of blood serum from a number of patients with an operative or radiation castration. This occurred as early as eight days and as late as thirteen years following total extirpation of the ovaries. It was also found in three patients complaining of irregular menstruation.

8. The examination of the blood of seven other patients with carcinomatous disease of the pelvic organs gave a positive reaction in only one instance, a woman, aged 52, with cancer of the cervix uteri, and seven years past the menopause.

9. Tandler, J., and Gross, S.: Untersuchungen an Skopzen, Wien klin. Wchnschr. **21:** 277 (Feb. 27) 1908.

10. Kon, J.: Hypophysenstudien, Beitr. z. path. Anat. u. z. allg. Path. **44:** 233, 1908.

11. Kolde, W.: Untersuchungen von Hypophysen bei Schwangerschaft und nach Kastration, Arch. f. Gynäk. **98:** 505 (Nov. 3) 1912.

12. Rössle, R.: Das Verhalten der menschlichen Hypophyse nach Kastration, Virchows Arch. f. path. Anat. **216:** 248 (May 14) 1914.

13. Engle, E. T.: The Effect of Daily Transplants of the Anterior Lobe from Gonadectomized Rats on Immature Test Animals, Am. J. Physiol. **88:** 101 (Feb.) 1929.

14. Evans, H. M., and Simpson, M. E.: Comparison of Anterior Hypophyseal Implants from Normal and Gonadectomized Animals, with Reference to Their Capacity to Stimulate the Immature Ovary, Anat. Rec. **42:** 48 (March) 1929.

15. Frank, R. T., and Goldberger, M. A.: Clinical Data Obtained with the Female Sex Hormone, J. A. M. A. **90:** 106 (Jan. 14) 1928.

16. Zondek, B.: Weitere Untersuchungen zur Darstellung, Biologie und Klinik des Hypophysenvorderlappenhormons (Prolan), Ztschr. f. Geburtsh. u. Gynak. **95:** 361, 1929.

17. Siebke, H.: Personal communication to the author; Ztschr. f. Geburtsh. u. Gynäk. **95:** 377, 1929.

18. The blood serum of one of the patients with amenorrhea, which gave a negative test for anterior pituitary hormone, showed the presence of a considerable amount of ovarian hormone.

19. Wagner, G. A.: Corpus Luteum und Amenorrhöe, Zentralbl. f. Gynäk. **52:** 10 (Jan. 7) 1928.

20. Aschheim, S.: Über Luteincystenbildung im Ovarium bei Blasenmole und Chorioepithelioma, Zentralbl. f. Gynäk. **52:** 602 (March 10) 1928.

Of seventeen patients with a functional amenorrhea, six showed anterior pituitary hormone in the blood, but in four cases the ovaries of the test animal gave the "luteinization" reaction.

It is hoped that the use of tests for the presence of anterior pituitary hormone in the blood of patients may prove of clinical assistance in the diagnosis and treatment of certain conditions which manifest themselves by periods of amenorrhea and other menstrual disturbances.

DYSINSULINISM

CONVULSIONS AND COMA DUE TO ISLET CELL TUMOR OF THE PANCREAS, WITH OPERATION AND CURE *

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Though the dangers of an excess of insulin were mentioned in a preliminary paper on the clinical action of pancreatic extracts,[1] the first complete study of the clinical effects of an overdose of insulin was made by Fletcher and Campbell [2] in 1922. Since then a few other signs referable to the nervous system, such as the occurrence of a transient hemiplegia,[3] have been noted. Coma frequently follows the administration of a considerable overdose of insulin; convulsions are not very uncommon in the young, though much less frequently encountered in adults; and marked overdosage, if untreated, results in the death of the patient. Commonly a progressive increase in the severity of symptoms accompanies the increasing hypoglycemia but, on the other hand, some patients seem to be exceedingly tolerant of the low blood sugar levels, at least for a time, and then slip rapidly into the comatose state.

Spontaneous hypoglycemia in diabetic patients has been previously noted,[4] and Seale Harris [5] has observed it in certain types of asthenic patients preceding the noon meal. Experimentally it has been shown by Mann [6] to occur following removal of the liver in dogs. Low blood sugar has also been reported by Gray,[7] associated with islet cell hyperplasia in the infant of a woman suffering from severe diabetes. The marked hyperplasia of the islet cells, together with improvement in carbohydrate tolerance in the diabetic boy described by Boyd and Robinson,[8] may also be mentioned. Following the analogy of other ductless gland diseases, tumors of the islet cells (adenomas and the like) might also be expected to give rise to a syndrome in some other respects the reverse of diabetes. Actually this has previously been reported only three times, though Shields Warren [9] in a recent paper has brought the total number of tumors observed post mortem up to twenty and concludes that they are really not so rare as would appear. Most of the tumors have been small and have appeared quite unlikely to give rise to clinical symptoms. An association with diabetes was noted in several instances, but Cecil [10] is inclined to regard these masses as being hypertrophic islands rather than true tumors. Warren regards one case as a true tumor.

The case reported by Wilder, Allan, Power and Robertson [11] is the first, as well as the most complete, case in which clinical data, chemical studies and pathologic examination have been correlated. The patient, who was a physician, noticed sudden attacks of weakness, faintness and paresthesia about twenty months before his death; these later became more frequent and more severe, producing profuse perspiration and trembling. It was noticed that the attacks could be cured or prevented by eating frequently or by taking sweet drinks. After a year the severity of the attacks was so great that a short fast resulted in coma and it became necessary to watch him while asleep and to give him candy at the first sign of unusual behavior. A complete metabolic study was made of the patient and then an exploratory operation was undertaken, disclosing a tumor mass in the pancreas with metastases in the liver. One month later he died. At necropsy a considerable portion of the pancreas was found replaced by a carcinoma of islet cells with numerous metastases in the lymph nodes and the liver. Insulin was found in one of the liver metastases.

The other two case reports are less complete and apparently the diagnosis was made at necropsy. McClenahan and Norris [12] report a case in which periodic attacks of unconsciousness or loss of memory occurred. The patient was admitted to the hospital in coma and his blood sugar was found to be 40 mg. per hundred cubic centimeters, remaining persistently low in spite of dextrose administration until his death seventy hours later. At necropsy a tumor of the pancreas was found which appeared to be an adenoma of B cell islet tissues. There was marked hypertrophy of islets in the remainder of the pancreas. Thalhimer and Murphy's [13] patient had a period of two and one-half years of gradually increasing severity of symptoms, resulting in a semistuporous condition with convulsions and marked hypoglycemia. At necropsy there was a small tumor of the pancreas, apparently originating from the islets of Langerhans and probably of low grade malignancy.

The following case is of interest because of the prolonged history of convulsions and coma resulting from hypoglycemia, the establishment of the diagnosis during life, the operation, and the cure of the condition:

REPORT OF CASE

History.—Mrs. B., aged 52, a highly intellectual white woman who formerly practiced law, complained in September,

* From the Departments of Medicine and Pathology, University of Toronto and Toronto General Hospital.

1. Banting, F. G.; Best, C. H.; Collip, J. B.; Campbell, W. R., and Fletcher, A. A.: Pancreatic Extracts in the Treatment of Diabetes Mellitus, Canad. M. A. J. **12**: 141 (March) 1922.
2. Fletcher, A. A., and Campbell, W. R.: The Blood Sugar Following Insulin Administration and the Symptom Complex—Hypoglycemia, J. Metab. Research **2**: 637 (Nov.-Dec.) 1922.
3. Ravid, J. M.: Transient Insulin Hypoglycemic Hemiplegias, Am. J. M. Sc. **175**: 756 (June) 1928.
4. Joslin, E. P.: Practical Lessons for Physicians and Patients in Diabetes, M. Clin. North America **4**: 1723 (May) 1921. Campbell, W. R., and Macleod, J. J. R.: Insulin, Medicine **3**: 269 (Aug.) 1924.
5. Harris, Seale: Hyperinsulinism and Dysinsulinism, J. A. M. A. **83**: 729 (Sept. 6) 1924.
6. Mann, F. C.: Studies on the Physiology of the Liver: I. Technic and General Effects of Removal, Am. J. M. Sc. **161**: 37 (Jan.) 1921.
7. Gray, S. H., and Feemster, L. C.: Compensatory Hypertrophy and Hyperplasia of the Islands of Langerhans in the Pancreas of a Child Born of a Diabetic Mother, Arch. Path. **1**: 348 (March) 1926.
8. Boyd, G. L., and Robinson, W. L.: Evidence of Regeneration of Pancreas in an Insulin Treated Case of Diabetes, Am. J. Path. **1**: 135 (March) 1925.
9. Warren, Shields: Adenomas of Islands of Langerhans, Am. J. Path. **2**: 335 (July) 1926.
10. Cecil, R. L.: Concerning Adenomata Originating From the Islands of Langerhans, J. Exper. Med. **13**: 595, 1911.
11. Wilder, R. M.; Allan, F. N.; Power, M. H., and Robertson, H. E.: Carcinoma of the Islands of the Pancreas, Hyperinsulinism and Hypoglycemia, J. A. M. A. **89**: 348 (July 30) 1927.
12. McClenahan, W. U., and Norris, G. W.: Adenoma of the Islands of Langerhans with Associated Hypoglycaemia, Am. J. M. Sc. **177**: 93 (Jan.) 1929.
13. Thalhimer, William; and Murphy, F. D.: Carcinoma of the Islands of the Pancreas, Hyperinsulinism and Hypoglycemia, J. A. M. A. **91**: 89 (July 14) 1928.

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1922, of extreme exhaustion and had her first attack. She was conscious of some indefinite malady, threw herself on a bed and passed into a semiconscious state. She was restless, tossing about on the bed, clutching the hands of those about her, making facial grimaces, repeatedly expectorating large quantities of mucus and failing to comprehend or reply to questions. Sweating and vomiting occurred, and in the course of an hour she returned to consciousness, feeling well although tired. Such attacks recurred six times in the next two years, but following a severe attack in 1924 they gradually became more and more frequent and also more marked. A severe attack might last as long as twelve hours. At this time it was noticed that if a glass of milk was given at the least suggestion of an attack or a light meal was taken, the seizure might be warded off, and as the hour for the fit was usually about 5 o'clock in the afternoon, an early afternoon tea became a plan of treatment. Later this did not suffice, as the attacks would often commence while the patient was sitting down to eat.

Nature of the Attacks.—There were two definite types of attack, a minor and a major. Usually a sense of extreme faintness preceded the onset, while there appears to have been an entire absence of fear or apprehension both before and in the interval between attacks. In the minor attack the patient became dazed, looked fatuous, and did not realize what was going on around her. Usually she was restless and perhaps attempted to leave the room; or she might slip down on the floor. These attacks occurred so often at the table that one wonders whether the smell of food was a stimulus to insulin release. In the major attack, which might be preceded by diplopia or by a feeling of numbness in the legs, the mental confusion was deeper; she had to be placed in bed, where the grimacing became very evident; one could not arouse her although the eyes might be open; her appearance was in some degree similar to that of an intoxicated person. Then the convulsion would commence with violent kicking, and tossing about of the arms and body, there being excessive secretion of saliva and incontinence of urine and feces No degree of stimulus appeared to rouse her until the onset of sweating and vomiting, and then, soaking wet with perspiration, the patient would return to consciousness. In the past year the attacks were changing to a deeper coma in which her breathing became stertorous and her pulse more rapid. Occasionally the patient became drowsy and slipped quietly into a coma to wake up later without any realization of the lapse of time or of events taking place during the comatose period. Following two of the severe seizures, the left arm and leg became paretic; and, while this lasted only a few hours in the first attack, in the later one it remained some days and was associated with thick, slurring speech. Subsequently, in and after each attack, the slurring speech was noticeable. The reflexes, both superficial and deep, remained unchanged even as they were in the convulsions and no extensor plantar response was obtained.

A complete neurologic examination was made on many occasions and it may simply be noted that never was there any abnormal sign, apart from the attacks themselves, in sensation, motor power (except the temporary paresis of the left foot), reflex action, special sense organs or mental state.

Admission to Hospital.—Jan. 24, 1929, the patient was admitted to the hospital for further investigation. Her full history need not be given, but the following points are of interest:

The patient had had cystitis twenty years before, and an occasional sore throat. A tonsillectomy was done in October, 1928, and was followed by a severe fit.

The patient's father and sister died of tuberculosis.

Until six years before, the patient's weight was 115 pounds (52 Kg.). It gradually rose to 160 pounds (73 Kg.). During the past six months she had noticed a loss of appetite and decreased energy; her weight had fallen to 148 pounds (67 Kg.). She had had constipation and hemorrhoids for the past two years. The menopause occurred eight years previously.

Physical Examination.—The patient was well developed and well nourished, but of sallow complexion. She appeared bright and mentally very alert and did not look acutely ill. The hair was iron gray and there were dark circles around the eyes. Most of the teeth had been replaced by dentures; the remainder were normal. The tongue and tonsillar bed were clean. The patient seemed quite normal. The urine was normal. The red blood cell count was 4,700,000; hemoglobin was 95 per cent; the white blood cell count was 6,000. The differential leukocyte count was within normal limits. The Wassermann reaction was negative. Nonprotein nitrogen was 27 mg. per hundred cubic centimeters. The blood pressure was 138 systolic and 94 diastolic. Roentgen examination of the skull and gastro-intestinal tract was normal. Dr. Ray Farquharson suggested that the convulsions and coma might be due to hypoglycemia. The blood sugar during a typical attack ending in unconsciousness was 0.04 mg. per hundred cubic centimeters, and prompt relief was obtained by the administration of dextrose intravenously.

TABLE 1.—*Results of a Blood Sugar Tolerance Test* *

Time	Blood Sugar, Mg. per Hundred Cubic Centimeters
9	0.08
9:30	0.18
10	0.25
11	0.26
12	0.24

* Feb. 3, 1929, 100 Gm. of dextrose was given to the fasting patient after the collection of a blood sample.

Clinical Course in Hospital.—The patient's course in the hospital may best be described as erratic; indeed, it is the erratic course of her illness to which we would draw particular attention in entitling this paper "dysinsulinism. While it was possible by a diet high in carbohydrate and the judicious allowance of small amounts of sweet drinks entirely to banish the attacks of hypoglycemia, at the same time, without the frequent administration of dextrose drinks in small quantities, we actually increased the frequency of the attacks as compared with the prehospital period. The most likely time of onset was in the early morning, just before lunch and just before the evening meal, with occasional reactions in the late evening. When intravenous administration of 50 per cent dextrose was used to bring her out of a coma, it was very likely to be succeeded early by another attack of coma if sugar was not promptly given by mouth. If, however, a considerable amount of dextrose (100 Gm.) was given by mouth, the blood sugar curve might be of the diabetic type (table 1).

TABLE 2.—*Blood Sugar Readings During a Twenty-Four Hour Period*

Time	Blood Sugar, Mg. per Hundred Cubic Centimeters
9:25 a. m.	0.050
10:25 a. m.	0.045
11:25 a. m.	0.040
12:15 p. m.	0.045
12:25 p. m.	0.043
12:50 p. m.	0.041
1:05 p. m.	0.045
1:25 p. m.	0.050
1:55 p. m.	0.070
2:20 p. m.	0.040
4:20 p. m.	0.120
6:20 p. m.	0.115
8:20 p. m.	0.150
10:20 p. m.	0.095
12:20 a. m.	0.070
2:20 a. m.	0.060
4:20 a. m.	lost
6:20 a. m.	0.090
8:20 a. m.	0.045

On another occasion, however, the patient was roused out of a drowsy precomatose state by the administration of 100 Gm. of dextrose but relapsed into complete coma in ninety minutes. Apparently the amount of dextrose reaching the circulation in a given time had an effect on the amount of insulin released, but the control was imperfect. It is interesting to note that Wilder's case also showed a blood sugar

tolerance curve similar to that given here. Though we have confirmed the association of low blood sugars and the reaction symptoms on many occasions, being able to initiate or prevent the condition by varying the rate and amount of carbohydrate administrated,[14] a correlation of the blood sugar during the twenty-four hours from March 5 to March 6 with the clinical state of the patient seems of interest. Table 2 gives the blood sugar readings.

The patient drank 100 Gm. of dextrose in water at 5:30 a. m. and did not eat any breakfast. During the morning, in spite of her low blood sugar, she answered questions readily and correctly and seemed well. At 12:15 p. m. she was drowsy and her hands were clammy. At 12:50 after a blood sugar test had been taken, she was given 20 cc. of physiologic solution of sodium chloride intravenously without benefit clinically and without any pronounced effect on the blood sugar. At 1:25 she was sweating and grimacing and did not respond to questions; her muscles were stiff and she was partly comatose. She was given 20 cc. of 50 per cent dextrose solution intravenously and within two minutes was bright again. A corresponding rise in blood sugar was noted but she was clinically in reaction again twenty-five minutes later. A dextrose drink was given and she ate a small dinner. The blood sugar correspondingly became high but fell during the night. At 5:30 a. m. she was again given a dextrose drink (100 Gm. to 8 ounces of water) but did not receive any breakfast. Symptoms of a mild reaction were present at 8:20 a. m.

Epinephrine is supposed to exert its hyperglycemic effect by liberation of sugar from the glycogen in the liver. Wagner and Parnas[15] have reported a case of hypoglycemia which was considered to be associated with failure of the liver to fix dextrose as glycogen because of a failure to obtain hyperglycemia on epinephrine administration.

Our patient was given 0.5 cc. of epinephrine hydrochloride, 1:1,000 solution, after a control blood sugar reading was taken. She did not have any evidences of hypoglycemia before and did not experience any uncomfortable symptoms after the administration of the drug, though the systolic blood pressure rose slightly. Table 3 shows that a prompt and considerable rise in blood sugar occurred and persisted for more than an hour, indicating that the patient had adequate glycogen stores in the liver and that it, unlike muscle glycogen, was readily available for mobilization. An ephedrine preparation gave a rise in blood pressure with slowly developing hyperglycemia.

TABLE 3.—*Blood Sugar Following Epinephrine Administration, March 2, 1929*

Time	Blood Sugar, Mg. per Hundred Cubic Centimeters
9:25	0.040
9:35	0.055
9:45	0.070
9:55	0.100
10:25	0.110

Solution of pituitary (double U. S. P. strength, 1 cc.) was given only once. Two hours previously the patient had been in convulsions and was relieved by 15 cc. of 50 per cent dextrose solution given intravenously. Here, contrary to our previous statements, and to our surprise, the hyperglycemia had persisted and we noted a slow fall in the blood sugar. Whether this was an expression of the antagonism between insulin and solution of pituitary or is to be attributed to the patient's dysinsulinism, we are unable to state (table 4).

Miscellaneous Tests.—Several other points were investigated, the results of which may be summarized here. The amount of dextrose required in twenty-four hours to be administered slowly in addition to a high carbohydrate diet, in order to keep the patient normal, approximated three-fourths pound (0.3 Kg.). We feel, however, that the amount required is in part due to imperfect balancing of the requirement and temporary stimulation of insulin production. Electrocardiograms taken when the blood sugar was high and when it was low were normal. Dihydroxyacetone, 100 Gm., administered during a reaction, gave slight and temporary relief and raised the blood sugar less than usual. A curious feature was the presence of small amounts of creatine in the urine while the patient was receiving a diet high in carbohydrate and excreting small amounts of nitrogen. After operation, when the high carbohydrate diet was discontinued and the nitrogen output was three times as great, the creatine disappeared from the urine. Sugar was found in the urine in traces on only a few occasions after particularly heavy dextrose administration. Ketone bodies were never found. Basal metabolic rates and respiratory quotients were difficult to obtain. One obtained at 6 a. m. with the patient's blood sugar low, though other evidences of hypoglycemic reaction were absent, gave a respiratory quotient of 0.85 and a basal metabolic rate of 96 per cent of the expected normal value. One and one-half hours after the administration of 100 Gm. of dextrose with a blood sugar of 0.130 per cent, the basal metabolic rate was the same and the respiratory quotient 0.83. No evidence was obtained of liver injury from its size, the van den Bergh reaction or the presence of bile or urobilin in the urine.

TABLE 4.—*Blood Sugar Following Administration of Solution of Pituitary, Feb. 26, 1929*

Time	Blood Sugar, Mg. per Hundred Cubic Centimeters
2:10	0.195
2:20	0.182
2:30	0.160
2:40	0.163
3:10	0.145

Convulsions and coma suggesting a neurologic disorder presented themselves as the outstanding features of this patient's condition. These were, in themselves, severe and somewhat unusual manifestations of the underlying cause—an excessive liberation of insulin resulting in a hypoglycemia. While it was necessary earlier to rule out certain other conditions, the establishment of a definite hypoglycemia appears to limit the possibilities to three: diffuse insular hyperplasia of the pancreas; adenoma of the islets of Langerhans, and carcinoma of the islets of Langerhans. The first we feel can be ruled out. It should, theoretically at least, produce a pure hyperinsulinism. It should appear gradually, producing minor signs first, should be constantly present, and probably should become progressively more severe. The history and response to tests by this patient lead to quite another conclusion. Severe attacks, infrequently occurring, recur more and more frequently and become more severe with the development of a certain tolerance for hypoglycemia and, most important, an erratic behavior, indicating that the response was not under the control of the nervous system in any way and could not be predicted, would seem to favor the diagnosis of a tumor rather than insular hyperplasia.

As between adenoma and carcinoma of the islet cells there does not appear to be a sound basis of differentiation. If metastases had been discovered there would be little room for doubt, but by ordinary physical and roentgen examinations these were not found, a fact by no means inconsistent with their presence. It is well known that adenomas possess the characteristics of the original gland; for instance, cases of dysthyroidism are

14. We consider ourselves fortunate indeed in having for a patient a woman of intelligence who exhibited no evidence of fear, apprehension, anxiety or annoyance with any of the numerous investigations undertaken and who willingly cooperated in the work, not only for her own benefit, but also for the elucidation of the condition.

15. Wagner, R., and Parnas, J. K.: Über eine eigenartige Störung des Kohlenhydratstoffwechsels und ihre Beziehungen zum Diabetes mellitus, Ztschr. f. d. ges. exper. Med. **25**: 361, 1921.

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known partaking of the characters of hyperthyroidism and myxedema, which become completely myxedematous on removal of the adenoma. Though it is somewhat unusual for carcinomas to retain the specialized functions of the cell, the rule is by no means invariable and in two of the three cases reported (Wilder and Thalhimer) a carcinoma was evidently the cause of the hyperinsulinism and from the metastasis in Wilder's case insulin was recovered. It may also be pointed out that, while insulin production is in these cases a specialized function of the cell, it is also a fundamental function of cells in general and therefore more likely to be carried over as a function of the malignant cell. We therefore felt justified in diagnosing only an islet cell tumor of the pancreas inducing dysinsulinism. While tests had shown that it was possible to keep the patient free from attacks by dietetic regulation this was somewhat onerous and, moreover, in view of the history of the case, likely to become less satisfactory as time went on. If an adenoma was present, a cure of the condition might be expected. If a carcinoma suitably placed for removal was discovered amelioration of symptoms might be induced, or if no metastases had taken place a cure might be hoped for. On these grounds we recommended operation. After consultation, operation was undertaken by Dr. Roscoe R. Graham, and the account of the operation is taken from his notes:

Operation and Result.—In considering the exploration of the pancreas, for a possible explanation of this patient's lesion, while one hoped that the causal lesion would be an adenoma, one had to be prepared to consider the more radical procedure of excising a portion of the pancreas. In considering the anatomic difficulties in connection with this, the conclusion was reached that excision of the distal half of the pancreas would be done with much greater safety if associated with a splenectomy, as in this way one is able to control absolutely the tributaries of the splenic vein in this portion of the pancreas.

At operation, March 15, 1929, the abdomen was opened by displacing the upper right rectus laterally, and the approach to the pancreas was made by dividing the gastrocolic omentum over the major portion of the greater curve of the stomach. In this way it was possible to approach the pancreas without hindrance. On exploration, a tumor that appeared encapsulated was found at a point in the middle of the pancreas, and extending from the lower border to within 0.5 cm. from the upper border. The posterior parietal peritoneum was divided along the lower border of the pancreas, and the pancreas gently wiped out of its peritoneal bed for a distance of about 2 inches. Very little hemorrhage was encountered in this procedure. An attempt was then made to enucleate the tumor from the body of the pancreas by blunt dissection, and this was accomplished with little hemorrhage. There were about a dozen fine points that required ligature. The removal of the tumor left a triangular gap, the sides of which measured about 2 cm. In order to control the leakage of pancreatic juice, mattress sutures were used to approximate the lateral limbs of the triangle, thus putting pancreatic tissue in contact. A large free omental graft was then inserted under the pancreas and along the line of suture, and fastened in place by interrupted catgut. Examination of the liver and glands did not yield any evidence of metastatic tumors. A drainage tube was inserted through the anterior layer of the lesser sac above the stomach, the rent in the gastrocolic omentum repaired, and the abdomen closed in layers around the tube. The tube was shortened, and was all out on the fourth day, no discharge whatever coming from it. The patient's postoperative convalescence from a surgical standpoint did not present any unusual features.

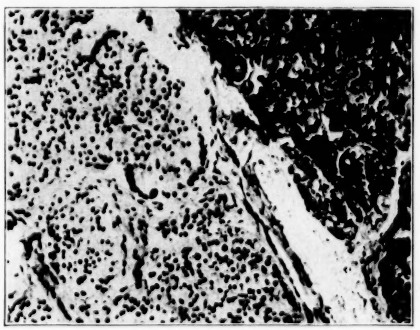

Fig. 1.—Carcinoma, islets of Langerhans type, showing the irregularity in the size and arrangement of the tumor cells. A portion of normal pancreas is also shown. Slightly reduced from a photomicrograph with a magnification of 200 diameters.

Pathologic and Histologic Changes.—The specimen was obtained fresh from the operation and examined immediately. It was found to consist of a spherical tumor mass, firm and elastic in consistency and measuring 1.5 cm. in diameter. It had pearly white bands of fibrous tissue running through it and, in part, forming a capsule about it. Attached to the outer surface was a thin layer of pancreatic tissue. The tumor itself was uniform in consistency and much firmer than normal pancreatic tissue. The cut surface was of a medium granular appearance and yellowish pink. No areas of hemorrhage or necrosis were observed.

Thin slices, not more than 3 mm. in thickness, were cut out and placed immediately into (1) Zenker's fluid without acetic acid, and (2) Zenker's fluid with 2 per cent acetic acid added. These were fixed for twenty-four hours and then washed in running water for twenty-four hours, and embedded in paraffin in the usual manner. For the study of the general characteristics of the growth, sections were stained with hematoxylin and eosin. Then, to demonstrate the islet nature of the cells, thin sections of both neutral and acid Zenker's fixed material were stained with neutral dyes, such as azofuchsin and ethyl violet, and also with Bowie's[16] stain; viz., Biebrich scarlet and ethyl violet.

The growth consisted of masses of rather atypical epithelial cells arranged in a lobular manner by a well formed connective tissue stroma. These small groups of cells had well formed capillaries running into them but very little connective tissue stroma. Surrounding the greater part of the tumor mass was a zone of fibrous tissue separating it from the neighboring zymogenous cells. There was no evidence of compression of surrounding pancreatic tissue such as one would expect to see in an expanding benign type of growth. In the center of the tumor were a few normal looking pancreatic ducts which were lined by a single layer of columnar cells. These were embedded in the dense connective tissue stroma and appeared independent of the tumor cells.

Individually the tumor cells varied in size and shape. Many of them were of moderate size and polyhedral or slightly columnar. They showed a marked tendency to grow in undulating cords, two or more cells in width, lying in the folds of which were well defined capillaries. In some areas the cells showed a tendency to grow in small clusters. The nuclei showed a considerable variation in size. Some were quite large and hyperchromatic; others were small and showed pyknotic degenerative changes. The pyknotic changes were particularly noticeable in the nuclei of the peripheral portions of each mass. The majority of the nuclei had a very fine granular type of chromatin which was uniformly distributed throughout the nucleus. With hematoxylin and eosin staining, the cytoplasm of the cells appeared finely granular and pinkish. When stained with the neutral dyes, such as azofuchsin, ethyl violet or Bowie's stain, two types of granules were readily recognized. With Bowie's stain, used in material fixed in

16. Bowie, D. J.: Cytological Studies of the Islets of Langerhans in a Teleost, Neomaenis Griseus, Anat. Rec. **29**: 57, 1924.

neutral Zenker's fluid, approximately 80 per cent of the cells had their cytoplasm filled with fine granules that took a definite reddish stain. The other 20 per cent showed granules that were purplish or bluish. From Bowie's interpretation of the staining reaction of this dye, it would seem that 80 per cent of these cells were α cells and the other 20 per cent β cells. Bowie's stain with the material fixed in acid Zenker's fluid gave just the reverse staining characteristics, the α granules now taking the purplish stain. With the azofuchsin and ethyl violet stains the same reactions were obtained with the exception of a slight difference in the color by the red dyes.

The large size of the tumor cells as compared with those of normal islets gave a splendid opportunity to study the character and distribution of their cytoplasmic granules. Their distribution was not uniform within the individual cells. Frequently the granules were found to be more densely packed at one end of the cell than the other. Besides the uneven distribution of the granules, it was observed that in many cases granules of both α and β types were present within the same cell. This was best demonstrated in sections fixed in the neutral Zenker's solution and stained with Bowie's stain, with which the α granules stain red, and the β granules stain blue. In such cells the relation of the two types of granules was not intimate. The β granules showed a tendency to concentrate at the pole of the cell next to the capillary blood supply, and the α granules to be diffusely disseminated throughout the rest of the cell. These observations would seem to indicate that the α and β cells are not distinct entities but rather the same cells having either or both types of granules within their cytoplasm. The β granules were frequently found concentrated at the pole of the cell nearest the capillary. This close proximity to the capillary may have been a factor in determining the character of the granules. While the general average distribution of α to β cells appeared to be as 4 to 1, this varied considerably in the different groups of cells and, as has just been noted, there was a variation of the types of granules within the same cell. Those cells which contained appreciably more α granules than β granules were taken as α cells.

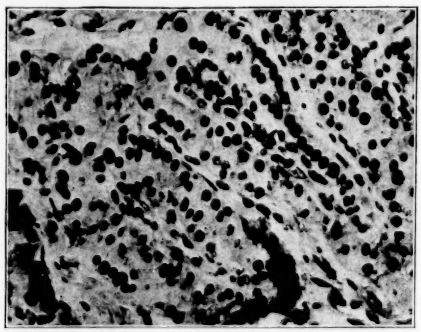

Fig. 2.—Carcinoma, islets of Langerhans type, showing the tendency of the cells to grow in undulating cords. Slightly reduced from a photomicrograph with a magnification of 400 diameters.

Adherent to the tumor growth was a small fringe of pancreatic tissue. The zymogenous cells of this tissue were all quite normal in size and staining characteristics. In it a few islands of Langerhans were found. These also appeared normal in size and, as nearly as one could determine, were normal in number and distribution. With the special stains for granules, the individual islet cells gave a normal staining reaction. The α and β cells appeared to be approximately equal in number. They were normal in size but much smaller than the tumor cells. There was no evidence of vacuolization or of pyknotic changes in their nuclei. From their general appearance there was nothing in the neighboring islets of Langerhans to account for the dysinsulinism as outlined in the clinical report.

It may be seen from the foregoing observations that we were dealing with a rounded, fairly well defined mass of tissue about the size of a hazelnut embedded in the body of the pancreas. It was firm and elastic, much firmer than the surrounding pancreatic tissue. No definite capsule was demonstrable and in removing it a zone of pancreatic tissue was of necessity taken with it. Histologically it was found to consist of masses of epithelial cells of the islet of Langerhans type. These contained both α and β granules in their cytoplasm.

The size of the mass, as well as its firm elastic consistency, distinguished it readily from the small, pulpy, friable masses seen in hypertrophied islets. Histologically there were certain features about the tissue which indicated its tumor nature and pointed very strongly to a malignant condition. The lack of uniformity in the size and staining characteristics of the cells, the presence of many large hyperchromatic nuclei and the unusual mixture of α and β granules within the same cell all pointed to certain incompleteness of differentiation. Infiltrating characteristics were shown by the absence of a definite delimiting capsule and by the presence of normal pancreatic ducts in the center of the mass.

Although at operation there was no evidence of metastatic growth in the neighboring organs, the gross and microscopic observations were sufficiently clear to indicate a diagnosis of carcinoma of the islets of Langerhans type. Professor Klotz, who has reviewed these sections, concurs in these opinions.

Recovery of Insulin from the Tumor.—Approximately one-half the mass removed from the pancreas was available for determination of insulin. The tumor, which appeared macroscopically to be definitely encapsulated, was carefully freed from all adherent pancreas and most of its capsule, and was found to weigh 0.84 Gm. It was then cut into as small pieces as possible and extracted with repeated stirring and pressure with three times as much 1.66 per cent hydrochloric acid in 95 per cent alcohol for three hours. The acid-alcohol extract was separated from the mass and replaced by 2.5 cc. of 95 per cent alcohol, with which it was again extracted. The two extracts were combined and allowed to dry at room temperature, leaving a small amount of yellowish white powder. Through the kindness of Prof. C. H. Best, this was tested for the presence of insulin by the mouse method after being redissolved in 4 cc. of acid water (p_H 2.5). Two lots of four fasting mice were given injections, respectively, of 0.25 cc. and 0.5 cc. of the extract. Three of the first lot and two of the second developed convulsions similar to those produced by insulin. In two mice the effect was rapid and the animals died; the other three recovered after the administration of dextrose. Owing to the small amount of material and certain technical difficulties, it would be impossible to give any accurate estimate of the amount of insulin present. This, however, would not at the present time serve any useful purpose, as data on the insulin extractable from the normal human pancreas are entirely lacking and the variations in animals do not permit us to judge of its yield by analogy.

Subsequent Progress.—During the operation, in preparation for a possible splenectomy, 500 cc. of blood and 300 cc. of saline solution were given the patient intravenously. The probable difficulty to be encountered with fluid administration subsequent to operation, and the probable need for sugar if complete removal of the tumor proved impossible, also being borne in mind, 1,800 cc. of 10 per cent dextrose was given. Two hours after operation the blood sugar was 0.244 per cent, falling gradually to 0.195 per cent twenty-four hours later, and to 0.09 per cent at the end of thirty-six hours, since which time the fasting blood sugars have been normal. The postoperative progress has been satisfactory; a loss of appetite, distaste for food and occasional vomiting for no sufficient reason so far as we could determine was a complication of the first two weeks. Table 5 gives the results of a blood sugar tolerance test with 100 Gm. of dextrose, April 2.

April 18, this test was repeated, with the results shown in the last column of table 5. The meaning of these results is not entirely clear. Though by no means normal, they are much better than those obtained previous to operation and

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probably represent a stage in the recovery of the patient. Sugar has not appeared in the urine since the second day after operation, but there lies a suggestion of possible diabetes in the fact that certain of the adenomas described have been found in diabetic patients. There is no evidence of degeneration in the islet cells of the pancreas surrounding the tumor.

During the fourteen weeks following the operation there has never been any clinical evidence, subjective or objective, of the recurrence of the attacks in any form. This appears to indicate that metastatic tumors do not exist or, at least, are not of sufficient size to cause symptoms. In view of the slow growing nature of the tumor and the lack of visible or palpable metastases at operation, one is encouraged to hope that spread of the tumor has not taken place. It may be that some one will object to our use of the word cure in connection with a carcinoma. If so, we must plead that that question is still *sub judice*. The patient, however, is at present cured of the convulsions and comatose states that led her to seek treatment and thus far the operation has been justified.

Fig. 3.—Carcinoma, islets of Langerhans type, showing normal pancreatic ducts incorporated in the center of the growth. Slightly reduced from a photomicrograph with a magnification of 200 diameters.

SUMMARY

In a case of dysinsulinism of six years' duration, attacks of coma and convulsions increasing in their frequency but warded off by the administration of food were found to be caused by low blood sugar levels. A study of the case revealed the erratic response to carbohydrate administration unless suitably administered and led to the diagnosis of the cause as an islet cell tumor of the pancreas. At operation a tumor of the pancreas was found and removed and a fruitless search for metastases was made. The patient recovered and has since been entirely free from the attacks. This constitutes the first successful treatment of such a case in the literature. The tumor was found to be a slow growing carcinoma of the islets of Langerhans and insulin was recovered from the tumor mass.

TABLE 5.—*Blood Sugar Tolerance Tests After Operation*

Time	Blood Sugar, Mg. Per Hundred Cubic Centimeters: April 2	April 18
Fasting	0.105	0.105
One-half hour	0.175	0.140
One hour	0.180	0.145
Two hours	0.125	0.160
Three hours	0.140	0.155

NECROSIS OF THE DISTAL EPIPHYSIS OF THE RIGHT FEMUR*

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AND
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Certain chronic diseases of joints causing protracted mild but increasing disability and atypical clinical symptoms are now recognized as being due primarily to epiphyseal necrosis, usually of one of the bones articulating in the affected joint. Axhausen[1] recently reported that an abundance of material available to him for examination had enabled the study of these lesions in all stages, and he expressed the belief that these epiphyseal necroses are bland anemic infarcts of the bone caused by mycotic embolic vascular occlusions. The organisms in these mycotic emboli, he stated, are rapidly destroyed by the tissues or never gain a foothold.

The chief objection to this view is the contention held by certain pathologists that anemic infarcts do not occur in bones because of the great vascularity of the marrow, but the skeleton as a rule is not subjected to careful postmortem examination. For this reason silent foci escape notice, and adequate information as regards the actual incidence is not available.

REVIEW OF CASES REPORTED IN THE LITERATURE

Axhausen included in his report the essential results of a postmortem examination by L. Pick of the body of a man, aged 46, in whose skeleton sharply demarcated foci of necrotic bone and marrow tissues were found. Their multiplicity, their location in the epiphyses and metaphyses, and their wedge-shaped outline indicated that the blood channels were concerned with the sudden disturbance in nutrition, and, although thrombi could not be demonstrated in histologic preparations, Axhausen believed that the lesions were caused by emboli. Nonhemolytic streptococci were cultivated in tissues from the foci and the age of the lesions was estimated at 3 or 4 days. Axhausen referred to reports by Schmorl and Lang in which wedge-shaped regions of connective tissue, of cartilaginous connective tissue, or of myxomatous connective tissue located in the epiphyses of bones were described. He said there was no doubt that these were peculiar end-stages of primary regions of necrosis.

In addition to the various changes and end-results (separation) of epiphyseal necroses which he had reported elsewhere,[2] it was possible for the necrotic region to be converted into connective tissue, cartilaginous connective tissue or myxomatous connective tissue. Axhausen's account of such a lesion in the distal epiphysis of the left femur is strikingly like the descriptive portions of our report. His patient was a man, aged 40, with a disability of the left knee varying in intensity but increasing slowly during an interval of twenty years. Pain and slight swelling of the knee followed exertion and disappeared with rest. The

* Aided by the Winfield Peck Memorial Fund.

* From the Henry Baird Favill Laboratory and Orthopedic Service A of St. Luke's Hospital.

1. Axhausen, G.: Über anämische Infarkte am Knochensystem und ihre Bedeutung für die Lehre von Epiphysconekrosen, Arch. f. klin. Chir. **151**: 72, 1928.

2. Axhausen, G.: Über Vorkommen und Bedeutung epiphysärer Ernährungsunterbrechungen beim Menschen, München. med. Wchnschr. **69**: 881 (June 16) 1922; Über den Abgrenzungsvorgang am epiphysären Knochen (Osteochondritis dissecans König), Virchows Arch. f. path. Anat. **252**: 458, 1924.

increase in the frequency and the severity of these symptoms brought the man to Axhausen's clinic. Flexion and extension at the knee were limited slightly. Roentgen examination disclosed the presence of a small "joint body" and a plum-sized rarefaction of the bone in the inner condyle of the femur, the usual location of an osteochondritis dissecans. The long axis was parallel to the long axis of the bone, and the lower end corresponded to the articular space. Along the margin was sclerotic bone. The knee joint was explored surgically.

The synovial membranes were thickened, and a region 3 by 2 cm. in the articular cartilage of the inner condyle was roughened. The bone beneath was soft and easily compressible. In the bone was a smooth pocket 4 cm. in diameter filled with yellow-brown, edematous connective tissue. There was no cystic degeneration. Axhausen believed that the origin of this lesion from a primary necrosis of the bone was established by the histologic examination of the articular cartilage. This disclosed the structural changes of an advanced separation process, namely, cartilage tissue with only slight changes, and, attached to this, necrotic bone trabeculae and characteristic layers of bone dust. The adjacent connective tissue had the structure of fibrocartilage. The astounding feature of the lesion was the replacement of living bone in the underlying portions of the epiphysis by mucoid connective tissue. Axhausen thought that while the roentgen examinations during the early stages of these lesions may not disclose changes of the bone, later examinations will demonstrate a slight atrophy or other alterations in structure.

Sudeck,[3] in 1900, soon after the application of roentgen rays to the examination of bones, reported the presence of rarefied regions about nontuberculous inflammatory foci which he designated "acute inflammatory atrophy of bone." These, he said, heal in a few months. Since the investigation of these changes in bones was made entirely by roentgen examinations, the results of histologic and bacteriologic studies of tissues were not available for his report. Sudeck stated, however, that similar changes were known to occur in bones with tuberculosis, not only in the parts actually infected but also in the vicinity of such places. Kienböck,[4] the next year, independently published a similar study, and emphasized that the changes are inflammatory and are not the result of inactivity of the parts involved. Later both[5] deviated somewhat from this view in expressing the belief that the disorder was essentially a trophoneurosis. Although the contour and the volume of the bone are unchanged, the compacta is thin and porous, and the spongiosa is widely meshed and rarefied. Kienböck reported that these lesions have been noted in

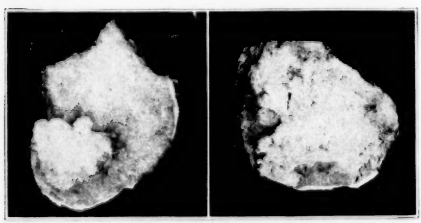

Fig. 1.—Two sagittal surfaces of the distal epiphysis of the femur illustrating the extensive region of necrosis.

Fig. 2.—Myxomatous connective tissue with extensive recent hemorrhages; reduced from a photomicrograph with a magnification of 151 diameters.

bones after joint disease, joint resection, pseudarthrosis, and, especially, after protracted severe inflammations of the extremities, occasionally when these have been fixed in a bandage for a considerable length of time. For this reason, inactivity of the part was considered to be the cause. At the time Kienböck wrote his report, the microscopic tissue changes in these lesions had not been studied. Somewhat later Hofmann[6] restated the essential features mentioned and added that the occurrence of this disorder of bones was not dependent on the extent or severity of a given injury. After seven or eight weeks, or even in six weeks, he said, a loss of bone structure is apparent in the roentgenograms, and later there are regions of rarefaction. The spongiosa is attacked first and in severe cases the cortex also becomes involved. The bone tissues are converted finally into a gelatinous mass in which remnants of bone are included. The epiphyseal ends of bones are the parts usually affected, and the shaft remains intact for a long time. The roentgenograms, according to Hofmann, give the impression that the diseased bone has been converted

3. Sudeck, P.: Über die akute entzündliche Knochenatrophie, Arch. f. klin. Chir. **62**: 142, 1900.

4. Kienböck, R.: Über acute Knochenatrophie bei Entzündungsprocessen an den Extremitäten (fälschlich sogenannte Inactivitätsatrophie der Knochen) und ihre Diagnose nach dem Röntgen-Bilde, Wien. med. Wchnschr. **51**: 1345, 1901.

5. Sudeck, P.: Über die (reflektorische) Knochenatrophie nach Entzündungen und Verletzungen an den Extremitäten und ihre klinischen Erscheinungen, Fortschr. a. d. Geb. d. Röntgenstrahlen. **5**: 277, 1901-1902. Kienböck, R.: Über Knochenveränderungen bei gonorrhoischer Arthritis und akute Knochenatrophie überhaupt, Wien. klin. Wchnschr. **16**: 57, 99, 1903.

6. Hofmann, H.: Über Sudecksche Knochenatrophie, München. med. Wchnschr. **63**: 296, 1916.

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into a gelatinous mass with fine trabecular remnants of bone, a tissue that could be sectioned easily with a knife. The soft parts around the involved bone become like dough in consistency, and the skin is tense and cyanotic. Hofmann stated that some of these bone lesions heal in a few months, but others continue for a long time (Jahr und Tag) without the least improvement. He considered the disease a trophic disturbance of the bone.

In the section of pathology and pathologic anatomy of the eighty-eighth meeting of the Deutsche Naturforscher und Aerzte in Innsbruck, Sept. 26, 1924, osteoporosis and certain other bone disorders were discussed by Pommer, Kienböck, Looser, and Schmorl.[7] The focal lesions of bones that Sudeck and Kienböck had described were spoken of as acute osteoporosis, or acute bone atrophy. Looser stated that acute atrophy of bones is regularly accompanied by muscle atrophy, vasomotor disturbances of the skin and soft parts, and edema and fixation of the joint, coincidental results of the etiologic factors of the bone atrophy rather than changes due to the bone atrophy itself. Looser considered disturbances of circulation important whether these were due to inflammation or to inactivity. He regarded the inactivity factor as of some consequence because muscular function is important in maintaining the circulation of the extremities and bones. His own anatomic observations confirmed the view that circulatory disturbances are associated with these acute necroses of bones. Looser stated that this disease is accompanied by only slight clinical symptoms, and is confused occasionally with tuberculosis of the joint.

Fig. 3.—Appearance of the tissues at the junction of the necrotic and intact portions. Attention is called to the slight callous tissue reaction (*A*) and the comparative absence of other reparative changes. Reduced from a photomicrograph with a magnification of 116 diameters.

After months of functional treatment the lesion in the bone may heal, but when the causal factor persists it may continue indefinitely. Persistence of the chronic inflammatory changes of the soft tissues leads to permanent stiffening of the involved joint.

A discussion of these disorders of bones with those mentioned in Axhausen's report or with the disease of the femur in our report may seem to be a digression, but the end-results of all appear to be so much alike

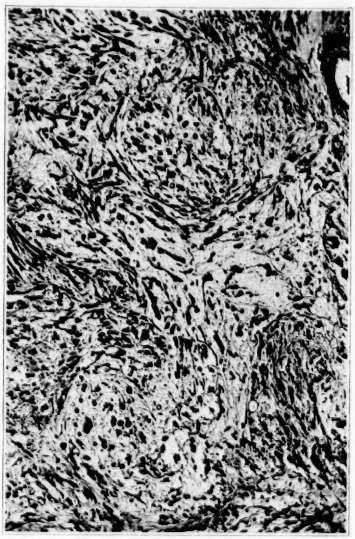

Fig. 4.—Some of the cellular portions of the myxomatous connective tissue; reduced from a photomicrograph with a magnification of 151 diameters.

when the usual prompt healing changes do not occur that a distinction in the late stages may be impossible. This is especially true since vascular disturbances are considered as etiologic factors with all, regardless of the mechanism. Schmorl, following a discussion of anemic necrosis of the head of the femur with fractures, stated that he had seen rare forms of anemic necrosis of the head of the femur without fracture, the origin of which he had been unable to determine. He said that these may be similar to the necroses of Köhler's disease (necrosis of the tarsal-navicular bones), Freiberg's disease (necrosis of the head of the metatarsal bones) or of the os lunatum and naviculare described by Axhausen. To these should be added Legg-Perthes' disease of the head of the femur and some of the circumscribed aseptic necroses of the epiphyses of bones designated osteochondritis dissecans by König. Askanazy,[8] in his discussion of the changes in the marrow fat, stated that Virchow classified bone marrow as red, yellow and gelatinous, a division held by some to this day. Askanazy said that the gelatinous type always represents a pathologic condition due to a gelatinous (serous) atrophy of the fatty marrow. This marrow is moist, translucent and glassy, and may be yellow, gray-yellow, gray-brown, or pale yellow-gray. Microscopically the

7. Proceedings of the Eighty-Eighth Meeting of the Deutsche Naturforscher und Aerzte, Centralbl. f. allg. Path. u. path. Anat. **35**: 258, 1924-1925.

8. Askanazy, M., in Henke-Lubarsch, Handbuch der speziellen pathologischen Anatomie und Histologie, Berlin, Julius Springer, part 2, **1**: 845, 1926.

large fat droplets of the cells break into several, and as these disappear the cell membrane, the cytoplasm and the nucleus of the fat cell become plainly visible. With serous atrophy of subcutaneous fat the cells collapse, but in gelatinous atrophy of bones most of the atrophied

Fig. 5.—Inflammatory changes in the soft tissues about the knee; the dark masses are mononuclear cells with the brown pigment of changed blood. Reduced from a photomicrograph with a magnification of 151 diameters.

cells remain extended for a considerable time, although some disappear. The changes in the fat tissues of the bone are essentially, then, an edema *ex vacuo*. A scanty fibrinous exudate is laid down in the meshes. With advanced gelatinous atrophy of the marrow fat, the stroma portion of the marrow becomes important. This is a loose netlike fibrous tissue, with a branched reticulum and connective tissue cells, in the meshes of which some fluid collects. Edematous stroma resembles the gelatinous marrow and it may contain much hemosiderin because of focal hemorrhages.

Since comparatively few patients are obliged to seek medical advice because of symptoms caused by chronic necrosis of the epiphysis of some bone, physicians generally and orthopedic surgeons have little opportunity to acquaint themselves with the character of this disease. Consequently, interpretations of the shadows cast on roentgen films or plates by the changes in the bones of these patients are likely to vary widely, and it is probable that no one will include the disorder here discussed. This divergence of opinions is even more likely to occur when the joint symptoms have existed for a long time in spite of expectant treatment, with unusually slow progression or regression of the lesion. Our purpose in this report, therefore, is to record the details of a chronic focal necrosis of the distal epiphysis of the right femur, and to relate the difficulties encountered in reaching a diagnosis of the disorder.

REPORT OF AUTHORS' CASE

The outstanding clinical features in our patient are the insidious onset of the illness and the long time during which some disease of the lower end of the right femur, accompanied by inflammatory changes of the soft tissues around the knee joint, was known to exist. The nature of the disorder was not determined until a thorough study was made of the tissues removed from the femur during the fusion operation of the knee joint. As might be expected, a variety of clinical diagnoses were made, no one of which took into consideration the lesion actually found or, in the opinion of the various physicians consulted, agreed with all of the clinical symptoms manifested.

History.—A white man, aged 27, sought medical advice (of E. W. R.) in January, 1913, because of an obscure trouble involving his right knee. He had acquired a gonorrheal infection ten years previously, and after that there were several recurrences. In 1908 he had noted pain and limitation of motion in the knee but with very few objective signs. For three years he had been under the care of Dr. John Ridlon, who applied a cast to the knee for eight months. The roentgenograms of the knee made in 1911 were examined by two physicians, who did not see any changes in the bones, but one of them thought the knee joint should be explored surgically. Since 1911, no cast had been used. The man was in good health except for the knee disorder. The joint was flexed at an angle of 15 degrees and could not be extended farther. It could be flexed to a right angle without pain or crepitation. The capsule was not thickened, and there was no swelling proximal to the patella. Distal to the patella there was considerable swelling on both sides of the patellar ligament. A low grade arthritis was considered to be the cause of the trouble, possibly a result of the gonorrheal infection. Exercises and physical therapy were advised. After two months during which there was no improvement, a quantity of gonococcus vaccine containing one million killed organisms was given hypodermically, and larger quantities were injected, until in June and July the patient received doses containing 20 million organisms. In October a Pirquet tuberculin test was positive. Dr. C. M. Robertson examined the tonsils and reported the presence of crypts containing caseous material. Tonsillectomy was advised. The patient was not seen again for eleven years. He was under Dr. Ridlon's care for at least part of this time and the roentgenograms of April 25, 1921, demonstrated a rarefied region in the lower end of the femur 1½ inches (3.8 cm.) wide and 1¼ inches (3.1 cm.) long which extended nearly to the articular surface, to within half an inch from the inner surface and to within three-fourths inch of the outer surface of the bone.

Fig. 6.—Reproduction of the roentgenogram taken Jan. 24, 1924. The internal condyle (*A*) has a large, sharply limited region of rarefied spongiosa.

Jan. 23, 1924, the patient returned (to E. W. R.) and stated that the knee had been troublesome for the past four years, and that on January 20 he had fallen and injured the joint. He thought that the patella had slipped laterally about three-fourths inch. The knee was swollen and tense with an effusion. The roentgenograms at this time disclosed that the rarefaction of the femur had extended so that all of the inner condyle,

half of the outer condyle, and a considerable part of the inner side of the upper part of the tibia were involved. There were a few arthritic spurs of the femur and tibia. An operation was advised, and the patient was not seen again until Dec. 18, 1926, nearly three years later. At that time Dr. Ridlon requested a further consultation. The patient had been under his care, and had worn a plaster cast for two years. In the roentgen film of December 20, the rarefaction of the femur was shown to have increased further, and there was considerable periosteal new-bone formation of the tibia, fibula and femur, and some destruction of the articular cartilage. All of these bones were atrophic. An operation was again advised. At the Mayo Clinic the lesion was diagnosed as tuberculosis of the bone, a diagnosis concurred in by local surgeons. The illness of the patient was reviewed at a meeting of the Chicago Orthopedic Club, and various opinions were expressed, many of the members agreeing that the lesion probably was tuberculous. Among the diagnoses considered were cyst of the bone, gonococcus infection of the joint, sarcoma and tuberculosis.

Fig. 7.—Reproduction of the roentgenogram taken Feb. 15, 1926. The rarefied region (*A*) has extended so as to include a large part of the epiphysis.

Treatment and Course.—When the patient was admitted to St. Luke's Hospital, Jan. 26, 1927, there was very little motion of the right knee and the joint was slightly tender and swollen. The swelling extended down to the ankle. The distal epiphysis of the femur was explored surgically (by E. W. R.). The lower end of the femur was removed with a saw about half an inch above the upper level of the diseased region. A thin horizontal section was cut from the upper end of the tibia, and a long tibial graft was inserted into the medullary cavity of both tibia and femur to prevent displacement and to provide continuity of bone structure. The patient made an uninterrupted recovery, and the bone fusion healed completely in a few months. After nearly two years at work he does not have any symptoms or disability except those resulting from the rigid knee. These are no real discomfort after the years of immobilization of the leg by casts.

Gross Appearance of Bone.—Several pieces of bone were removed from the lower end of the femur and the upper end of the tibia during the fusion operation. The largest of these included the lower 6 cm. of the femur, and the internal and the medial 1.5 cm. of the lateral condyle. The width of this bone at the distal end was 6.5 cm., the maximum thickness, 7 cm. On the sagittal surface made by cutting this from the shaft of the femur there was a region 3.3 by 3 cm. in the posterior portion of the external condyle composed of wet yellow-white, myxomatous connective tissue which extended dorsally to the surface of the condyle and to within 1.2 cm. of the articular surface. On another surface made by cutting in a sagittal plane through the outer portion of the internal condyle there was a continuation of this tissue, 4 by 3 cm., which reached the surface of the bone behind in a place 2.5 by 1.3 cm. The mass proximally was sharply limited from the bone, but below much less so. The weight-bearing portions opposite the articular surface of the internal condyle were elastic. The articular surface of the condyle was markedly changed in that only about one fifth of the anterior half had a thin cartilage. The other portion was rough and reddened. About a fifth of the articular surface of that part of the external condyle present was rough and the entire weight-bearing portion had the elasticity of firm rubber.

The second piece of bone included most of the external condyle and the adjacent tissues of the lower 6 cm. of the femur. It was 2.8 cm. wide. In the posterior portion the soft, opaque, white, myxomatous tissue measured 4 by 2.5 cm. and was about 2 cm. thick. It reached the surface of the bone dorsally just above the articular cartilage in a place 2 by 1.5 cm. and it extended laterally almost to the bone cortex. This mass of tissue was lifted out easily, leaving a pocket in the spongiosa with an irregular porous surface as though the bone had been gnawed out. The pieces of bone from the upper end of the tibia had none of these changes, but the articular cartilage surfaces were roughened, reddened and, in some places, quite thin. There were several pieces of fibrous and fat tissue, of which the largest, 4.5 by 2.5 by 1.2 cm., had along one side tissues 3.5 by 1 by 1.2 cm., which were chocolate-brown as with an old hemorrhage. The heart-shaped patella was 5 by 4.5 by 1.5 cm. The articular surface was roughened and had very little cartilage.

Histologic Characteristics.—A 5 mm. segment of the bone cut in a sagittal plane through the lower end of the femur 2 cm. from the tuberosity of the inner condyle was divided into twelve portions according to a sketch and from these sections prepared by the paraffin method were stained with hematoxylin-eosin, phosphotungstic acid-hematoxylin, Mallory's aniline blue and van Gieson's stain. In addition, other portions of the gelatinous tissues in the bone and the soft tissues around the joint were examined in a similar way. There was a marked necrosis of the bone trabeculae in the region mentioned, so that there remained irregular spicules of necrotic bone, some of them having margins which stained as though infiltrated with lime.

These necrotic bone spicules were embedded in myxomatous fibrous stroma that varied considerably in different places. Thus, in some portions the staining reactions were those of necrotic tissue with small vacuoles such as remain after the solution of fat droplets, while in gradual transition were other portions with a moderate number of nuclei of myxomatous connective tissue and atrophied, markedly shrunken fat cells, the cytoplasm of which contained one or several small vacuoles. Besides these, but merging into them without interruption, were more fibrous and also more cellular portions, as in edematous scar tissues. These changes in turn extended into marrow spaces with fatty areolar tissue only slightly changed by a chronic inflammation. Recent hemorrhages in poorly cellular myxomatous tissues were common and, as evidence of old hemorrhages in these tissues, there were focal aggregates of large mononuclear cells filled with the brown pigment of changed blood. In addition to the necrotic spicules of bone, there were others with somewhat altered staining qualities around which were small, irregular zones of osteoid tissue as in a bone callus, and about some of the necrotic pieces were finely powdered particles of bone. Cartilage tissues were not found except along the joint surfaces. The articular cartilage along its contact with the necrotic bone had an irregular margin. The soft tissues around the bone included some edematous connective tissue with lymphocyte and plasma cell infiltrations like those in the marrow spaces, and also masses of edematous vascular chronic granulation tissue with nodule-like accumulations of lymphoid tissue, and disseminated mononuclear cells with the brown pigment of changed blood.

Fig. 8.—Appearance, June 22, 1927, five months after operation.

Structures resembling bacteria were not observed in the histologic preparations of these tissues.

Comment by Dr. John Ridlon.—I first examined and treated this man at the Home for Destitute Crippled Children, putting on one or two plaster casts, prior to his coming to my office,

Feb. 3, 1911. At my office three plaster casts, extending from the crotch to the ankle, were applied between Nov. 18, 1911, and Jan. 11, 1912. I did not see him again until Jan. 24, 1924. Between Jan. 24, 1924, and Dec. 15, 1926, I applied ten plaster casts, most, if not all, cut open and removable for the purpose of cleanliness.

When the man came under my care in 1924, there was a flexion deformity at the knee of more than 15 degrees, and no motion. Under the treatment given, the flexed knee became straight, and the stiff knee regained about 15 degrees of motion. The man assured me that at no time from the beginning of his trouble did he have any pain, and continued to work regularly as a tailor. The swelling about the knee mentioned in the report, I believe, was caused by the constriction of the plaster casts he had worn, and was not a result of the disease of the femur. It was exactly like the swelling seen when casts have been worn continuously for a long time in the treatment of knee-joint tuberculosis.

Fig. 9.—Appearance, Aug. 5, 1929, two years and nine months after operation. The patient plays from eighteen to thirty-six holes of golf in a day without discomfort.

As there had been a constant and steady improvement of the clinical symptoms during the time that I treated him, I opposed the operation, which was made for the purpose of establishing a diagnosis and in the expectation of finding a malignant growth.

COMMENT

The chronicity of the disease, and the extensive destruction of the spongiosa in the distal epiphysis of the femur without reparative reaction of the surrounding marrow tissues are the astonishing features of the disability of our patient. This disability of the right knee extended over seventeen years, an interval of time nearly equal to that mentioned by Axhausen for his patient. A large rarefaction of the distal epiphysis of the femur was demonstrated by roentgen examinations six years before operative intervention in the joint, and probably changes in the bone had existed for a considerably longer time. It may be, as Axhausen has stated, that the earlier changes are not manifested in roentgenograms, and for that reason the examinations made a year after the onset of symptoms failed to disclose alterations of the bones. The exciting cause of this lesion and the factors concerned with its continuation are uncertain. There is no history of trauma, and the only tangible clue with some significance is the gonorrheal infection acquired some time before symptoms were noted in the knee. Interpreted according to Axhausen's view there may have been bacterial embolism of the end arteries of the epiphysis which interrupted the blood supply to the portions involved. This in itself seems inadequate in explaining the progressive character of the lesion, except that the bacteria continued to grow and slowly extended the region involved. Phemister's review [9] of pyogenic infections of bones mentions the mycotic embolic nature of osteomyelitis. Phemister stated that with the localized form the onset may be insidious and the local symptoms entirely absent. Perhaps other factors, such as the wearing of rigid casts, favored the progression of the lesion. However, the explanation offered is purely hypothetic and many details are needed to bridge the wide gap in our knowledge of the lesion in order that we may know why there had been so few reparative changes of the bone about such an extensive necrosis of the epiphyseal bone and marrow tissues.

CLINICAL HYPERPARATHYROIDISM *

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Enlargement of the parathyroid glands has been noted in numerous instances in the course of postmortem examinations. In animals it has been produced experimentally in association with rickets, and in the human being it has been found in patients with abnormal conditions of the osseous system. The enlargement has been considered as an attempt of the body to compensate for the disturbance of calcium metabolism.

In 1926, Mandl [1] postulated that in some instances the parathyroid enlargement was primary and that the bone changes arose secondary to hyperparathyroidism. Having failed to obtain relief for a patient with generalized osteitis fibrosa by means of parathyroid transplants or injections of parathyroid extract, he performed an exploratory operation and found one of the parathyroids definitely enlarged. This was removed and found to be adenomatous. Following its removal, the patient improved steadily. Gold,[2] in 1928, and Barr,[3] in 1929, reported similar instances. Duken,[4] in 1928, reported two cases in which there was a syndrome quite similar to that of the other recognized cases but in which the diagnosis was not confirmed by operation. Our report concerns another patient belonging to this group.

The patient came for consultation because of progressive bowing of the legs. The routine examination revealed some anomalies of the urine, and as a result a tentative diagnosis of renal rickets was made. This led to extensive chemical studies, which served to indicate that parathyroid hyperfunction was the primary cause of the condition. This belief was confirmed by the published observations of Mandl and Gold.

9. Phemister, D. B.: Newer Knowledge of Pyogenic Infections of Bone, Proc. Inst. Med. Chicago **7**: 169, 1929.

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1. Mandl, Felix: Arch. f. klin. Chir. **143**: 245, 1926.
2. Gold, Ernst: Mitt. a. d. Grenzgeb. d. Med. u. Chir. **41**: 63, 1928.
3. Barr, D. P.; Bulger, H. A., and Dixon, H. H.: Hyperparathyroidism, J. A. M. A. **92**: 951 (March 23) 1929.
4. Duken, J.: Ztschr. f. Kinderh. **46**: 114, 1928.

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Although there was no external evidence of a parathyroid tumor, an exploratory operation was performed. A tumor of the left lower parathyroid was found which, on examination, proved to be an adenoma. Following its removal, the chemical abnormalities were corrected and the patient's health was much improved. Included in the report is a summary of the clinical and metabolic observations of this patient, correlated with the characteristic features of the other reported cases.

REPORT OF CASE

History.—M. F., an American born white man, aged 21, came under observation, Dec. 20, 1928, because of bowlegs. The family and past medical histories were irrelevant. His deformity had been first noted three years previously and had become progressively worse. Five years previously, before any noticeable deformity was present, the patient began to complain of increasing weakness. Two years before, the weakness and pain in his legs made walking difficult and uncertain, his legs sometimes jack-knifing without warning. A few months before examination pain appeared in the lumbosacral region, which increased with exercise and radiated down the right leg to the calf.

The bowels had been constipated for the past five years, requiring cathartics as a routine. For about a year he had had periodic attacks of severe abdominal pain and of vomiting, which would last about three days, induced by taking any food and recurring about every three weeks.

For the past two years he had increased thirst, drinking about a glass of water each hour of the day and once or twice during the night. There was corresponding polyuria. Occasionally puffiness of the ankles was noted. During the past two years there had been a slight increase in the size of the head. He had moderate dyspnea on exertion. No other pertinent points were elicited. At no time did he have symptoms relevant to the thyroid gland.

Fig. 1.—Bowing of lower extremities, flaring of costal margins and lumbar lordosis.

Physical Examination.—The patient was quite well developed but was short because of marked bowing of the legs. His posture was slouching, with protuberance of the abdomen. The gait was slow and rather uncertain. Speech was slow but clear, and he was well oriented. He showed marked lassitude of body and mind. The facial features were mongoloid and peculiarly flattened. The forehead protruded, the malar eminences were prominent and high, and the chin was recessive. The skin was moderately pigmented, said by the patient to be a familial characteristic. The mucous membranes were not pigmented. The hair was normal in appearance, amount and distribution. The greatest circumference of the head was 59 cm. The right pupil was irregular and somewhat large; according to the patient's statement, this was the result of an accident in childhood. The tonsils were large and presented evidence of chronic infection. The teeth were all present and seemed in excellent condition, except that the incisors were somewhat loose. The neck did not offer any indication of a tumor mass; palpation during swallowing or inspiration in the prone, dependent or erect position did not reveal any palpable abnormalities. The inner third of the right clavicle was diffusely enlarged. The thoracic cage flared markedly at its lower margin. There was no evidence of intrathoracic pathologic changes. The blood pressure was 111 systolic and 70 diastolic. The abdomen and genitals appeared normal. The spine showed considerable dorsum rotundum and lumbar lordosis; the lower rib margins extended within three-fourths inch of the crest of the ilium. The tibias and femurs were markedly bowed laterally; when the internal malleoli were approximated, the femoral condyles were separated by a gap of 4¾ inches. There was no anterior bowing nor periosteal irregularity. Mild genu recurvatum was demonstrable when standing. The greater trochanters were each three-fourths inch above Nélaton's line. Abduction of the hips was limited to 30 degrees. Otherwise, all joints were normal in range of motion and were painless. The upper extremities appeared normal except for moderate muscular atrophy. Elsewhere, muscle tonus seemed good. The deep and superficial reflexes were present and apparently normal.

Fig. 2.—Anterior and sectioned views of parathyroid adenoma. Encapsulation and cystic degeneration are evident.

Laboratory Observations.—The morphology of the blood was normal; the Wassermann reaction was negative. The serum calcium ranged from 15.3 to 17.6 mg. per hundred cubic centimeters; the phosphorus, from 2.2 to 3.3. The alkali reserve and chlorides were within normal limits. The daily urinary volume ranged from 2,500 to 3,000 cc. Freshly voided specimens were neutral or alkaline in reaction, with a specific gravity which varied but little from 1.010; a heavy white precipitate developed soon after voiding. Specimens were negative for sugar and albumin; on one occasion a few hyaline and granular casts were reported, but they could not be found in any subsequent examination. Nonprotein nitrogen values of the blood were normal, even at the height of metabolism of a meal high in protein. The phenolsulphonphthalein output for the first hour was 19 per cent; in two hours, 32 per cent. Cystoscopy and pyelography were performed, with normal observations. Sugar tolerance tests were normal. Ophthalmologic examination showed traumatic ophthalmoplegia, right, and myopia; the fundi showed some evidence of arteriosclerosis. The basal metabolism was normal.

Roentgen Examination of Bones.—Films of the entire skeleton were obtained. The characteristics may be summarized as follows:

1. All bones gave evidence of inadequate cortical deposition and diffuse absorption of calcium salts. For example, the calvarium appeared moth-eaten, and the diploe were indistinguishable. The cortex of the long bones was easily penetrated by the rays and the periosteal aspect was irregular. This was particularly noticeable in the phalanges. Their shafts were affected most markedly at the point of junction with the synovial surface.

2. Distortion was present in the long bones of the lower extremities, the pelvis and the spine, apparently the result of stresses of weight-bearing exerted on softened bone. There was bilateral slipping of the femoral heads on their respective necks, of the lower femoral epiphyses on the shafts, lateral bowing of the tibias and femurs, a varus deformity of the ischia, and flattening of the vertebral bodies from above downward, with dorsum rotundum and lumbar lordosis. The

upper extremities showed evidence of osseous insufficiency by an alteration of the normal angle of the humeral head in relation to the shaft.

3. Cystic areas were present in almost all bones. The left ileum was half replaced by cystic areas wherein finer trabeculae could be made out. Such areas replaced the inner third of the right clavicle. They were present in both tibias, femurs, humeri, the skull, mandible and sacrum. No pericystic sclerosis was noted in any area.

Diagnosis.—To observe the osteolysis and static distortions, osteomalacia is suggested; from the local cystic lesions, osteitis fibrosa cystica must be considered; from the diffuse skull changes, the possibility of an early stage of Paget's disease would be entertained.

On the basis of the foregoing, a diagnosis was made of hyperparathyroidism with resultant bone dissolution. It was assumed that the urinary observations were either secondary to this or were merely coincidental. During a period of fifteen weeks the patient was made the subject of extensive clinical and metabolic studies, which will be reported elsewhere in greater detail. The bowels were markedly constipated during this time, and the patient had several attacks of nausea and vomiting. On one occasion his clinical condition led to a diagnosis of chronic appendicitis. He stated that these attacks were typical of others which he had had since the onset of his illness. He also complained of increasing weakness and pain in his arms and legs. However, he gained 18 pounds (8 Kg.) during this period.

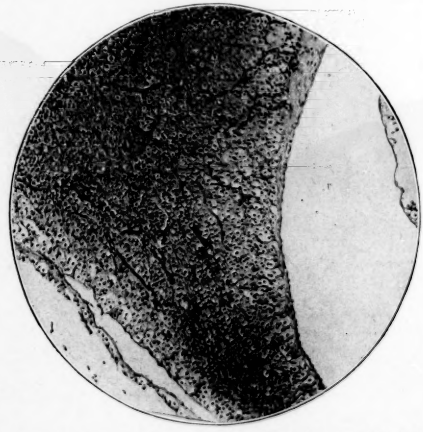

Fig. 3.—Low power magnification of parathyroid tumor; hyalinized area is present in right upper corner bordering on cyst.

Operation and Result.—April 12, 1929, a parathyroid adenoma was removed by Dr. Frank Peterson, of the department of surgery. A collar type of incision was made. The lobes of the thyroid were lifted anteriorly and the parathyroids isolated. The right upper and lower parathyroids were recognized as yellow pea-sized bodies. The left upper parathyroid was of similar character. The left lower parathyroid could not be seen. Instead, a walnut-sized body was found by palpation, below the clavicle, outside the thyroid capsule. On delivery, this was found to be an encapsulated oval mass, 3.5 cm. by 2.5 cm. During ligation of the pedicle and removal of the mass, it was ruptured and some grumous material escaped. The tissue was identified pathologically as adenoma of the parathyroid.

Figure 2 is a drawing of the fresh specimen. The pathologic section (fig. 3) revealed glandular tissue indistinguishable from that of a normal parathyroid gland except that in some areas there was evidence of degeneration with the production of cystic areas. Hyalinization had occurred surrounding some of these cysts. The tumor tissue was completely confined by a fibrous capsule. No evidence of a malignant condition was manifest.

The patient suffered but little discomfort from the operation. A few hours after the tumor was removed, he noted that his hands were shaky. On the following day there was tremor of the fingers and eyelids, and Chvostek's sign was present. At this time the serum calcium was 12.3 mg. per hundred cubic centimeters. Parathyroid extract-Collip was given repeatedly during the next few days, and the diet contained much milk. While convulsive movements did not develop, the patient complained of trembling of the extremities for several days, and the facial phenomenon could be elicited. The serum calcium and phosphorus remained low during this period; the lowest calcium value noted was 4.95 mg. During the next three weeks the serum calcium gradually returned spontaneously to the normal level; the phosphorus value, while somewhat increased, was lower than is considered compatible with formation of new bone. The urinary excretion of calcium practically disappeared, and the calcium balance was strongly positive.

Almost immediately after operation the patient's gastro-intestinal symptoms disappeared and bowel function became normal. His appetite was much improved. He appeared more alert mentally, was much more active physically, and seemed to have better muscle tonus. The polydypsia and polyuria subsided; the urinary reaction became more acid, and the specific gravity showed the normal range of diurnal variation.

Two months after operation there was no roentgenologic evidence of increased bone density. Clinically there has been no opportunity to determine that the osteolysis has been checked.[5] Symptomatically, however, the patient is free from complaints aside from the bone deformities. His cheeks have become pink, his eyes bright. The limb pain and weakness have disappeared. The lassitude has left him and he states that he has not felt as well at any time within the past five years. He will remain under periodic observation and at a later time the postoperative results will be reported from the orthopedic standpoint. Periodic observations of the density of the bones of his extremities will be of particular interest.

COMMENT

Clinical hyperparathyroidism has but recently been recognized as an entity. We have found reports of only five instances other than our patient, and in two of these the diagnosis, based on the clinical and laboratory observations, was not confirmed by operation. In three reported instances a parathyroid tumor was removed, and in each the patient's symptoms were definitely alleviated. The incompleteness of the reports of these cases makes a thorough correlation not possible. However, there are many outstanding similarities between the six patients, which are sufficiently constant to permit the formulation of the syndrome characteristic of the condition. Barr has already made such a correlation. The purpose of this presentation is to substantiate his conclusions and add others to them.

In summarizing the symptomatology of the condition, it is necessary to consider disturbances of function of the renal, gastro-intestinal, osseous and muscular systems. In the majority of the reported cases, the symptoms and clinical manifestations pertaining to these systems would have been sufficient to suggest the diagnosis of hyperparathyroidism. The chemical studies of the blood serum and urine serve to establish the diagnosis. In some instances, the osseous disturbances have not been noted by the patient until some time after disturbances of other systems have arisen. In such cases at least, it is probable that the early detection of the disturbance of calcium metabolism would have permitted the establishment of the diagnosis before the entire syndrome had developed.

5. Three months after operation, the blood calcium and phosphorus were normal, and bones showed evidence of progressive repair.

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The principal complaint of each patient pertained to the osseous system. Prominent mention was made in all but one instance of urinary symptoms as well, and in most cases these antedated the onset of bone symptoms. Polyuria was noted in half the instances; in one case diminished volume was recorded. A heavy urinary precipitate had been noted in most of the

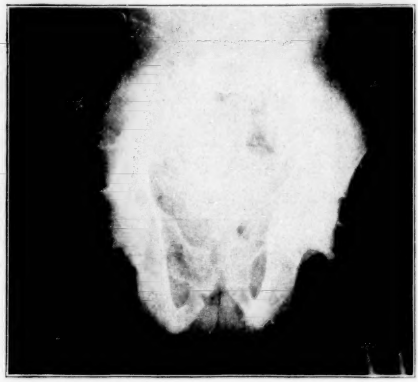

Fig. 4.—Appearance of pelvis. Note decrease of density, cystic areas above acetabulum on left, in each ramus of the ischia, and slipping downward of femoral heads on the shafts.

examinations. Two patients had symptoms of cystitis, and two had evidence of nephrolithiasis. In our patient the urinary observations were very suggestive of chronic interstitial nephritis; the volume was large, the specific gravity was fixed at approximately 1.010, and on one occasion casts were reported. The output of phenolsulphonphthalein was diminished. Although some pathologic involvement of the kidneys may have been present, the absence of retention of nonprotein nitrogen and of elevation of the blood pressure speak against a noteworthy degree of renal functional impairment. The abnormal observations referred to, together with the alkaline reaction of the urine, are thought explainable on the basis of the large excretion of calcium salts in the urine. This is substantiated by the disappearance of polyuria, rise and variability of specific gravity, and shift of reaction of the urine following the removal of the parathyroid tumor.

It would be easy to make a diagnosis of renal rickets in a patient with bone changes such as are found in this condition, together with such urinary abnormalities. However, the two conditions can be clearly differentiated by the determination of the serum calcium and phosphorus. In renal rickets the calcium is lowered and the phosphorus increased, while in hyperparathyroidism the reverse is true.

Loss of appetite, nausea and vomiting were noted in half of the cases. In addition, our patient had persistent and marked constipation and recurrent attacks of severe abdominal pain, which on one occasion had led to a clinical diagnosis of appendicitis. Gold reported similar symptoms.

All patients have had difficulty in locomotion; in some instances they had become bedfast. The impaired function was due to static bowing of the bones, or spontaneous fractures; pain in the limbs and muscular weakness were prominent symptoms. The most constant change in the bone, as shown by the roentgenograms, was diffuse rarefaction. The appearance was quite typical of that seen in generalized osteitis fibrosa, although in many ways it resembled osteomalacia. In some instances bone cysts were present; when demonstrable, they failed to show evidence of bone reaction (i. e., cortical deposition of lime) surrounding them. Spontaneous fractures were noted in some roentgenograms; these showed callus formation but were not normally calcified. One patient had a slipped epiphysis. One of Duken's patients whose epiphyses had not yet fused with the shafts had symptoms identical with those of late rickets. The roentgenogram of the phalanges of our patient presented an unusual appearance (fig. 5) which has not been noted in other conditions. There was absence of cortical density, giving a peculiar fibrous appearance to the bones. One of Duken's illustrations is very similar to this. It suggests the failure of cortical bone deposition, together with mobilization of the lime previously deposited. The roentgenograms of our patient's head (fig. 6) simulated the appearance of Paget's disease; one hip bone was typical of osteitis fibrosa cystica; the femurs resembled osteomalacia.

Muscular weakness and hypotonia were recorded by three observers. Our patient, while not as hypotonic as Barr's, showed marked weakness, lassitude and muscle pains.

The teeth of our patient appeared sound and free from caries. There was evidence of bone absorption surrounding the roots, and the incisors were quite loose. Barr mentions a similar condition in his patient.

In four of the six reported cases, exploratory operations were performed and the diagnosis of parathyroid adenoma was established. In one of Duken's cases, a tumor could be palpated in the region of one of the parathyroid glands but no operation was performed. In the other, the diagnosis was based entirely on the patient's symptoms and alterations in the serum calcium. The tumors removed at operation were quite large in every instance, approximately the size of an olive; yet in only one instance was the tumor palpable before operation.

Fig. 5.—Left hand, showing periosteal irregularity and radial deformity.

In three instances the left lower gland was involved; in the fourth it was the right upper. A single gland was involved in each instance; no mention is made of noteworthy changes in the other parathyroids.

In each case the serum calcium was elevated above the normal level. The values recorded range from 13.1 to 20.75 mg. per hundred cubic centimeters. The

serum phosphorus was not mentioned in the reports of Mandl and of Gold; in one of Duken's cases the phosphorus was normal; in half of the reported cases it was definitely lower than normal. Our patient's values ranged between 2.2 and 3, and Barr's patient had only 1.4 mg. per hundred cubic centimeters. Duken postulates that hyperparathyroidism can account for only the high calcium level and that the low phosphorus value is indicative of coexistent rickets. As lowered values have been noted in half of the recorded cases, it seems more likely that the diminution of serum phosphorus constitutes a part of the reaction of the organism to the hyperparathyroidism.

In all instances in which operation was performed, the preoperative urinary output of calcium was definitely increased above the normal. Metabolic studies of Barr's patient and of ours showed a markedly negative calcium balance; our patient, moreover, was barely in positive phosphorus balance.

Fig. 6.—Skull, showing mottling of calvarium throughout and general decalcification.

Barr has commented on the fact that giant cell tumor has been diagnosed in numerous instances of probable hyperparathyroidism. His patient had a finger removed because of a tumor, and the pathologist's diagnosis of the tissue was typical giant cell sarcoma. The hyperparathyroidism, which was probably causative, was discovered later. One of Duken's patients developed a rapidly growing tumor of the maxilla; this was excised, with a preoperative diagnosis of malignancy, but the pathologic report on the specimen was osteitis fibrosa. The other patient reported by Duken had observations quite typical of osteitis fibrosa generalisata with hyperparathyroidism; yet the necropsy diagnosis was generalized sarcomatosis. Until it has been demonstrated that malignant conditions can of themselves, without parathyroid involvement, produce disturbances of the calcium metabolism such as these patients have shown, it is probably justifiable to consider such associated microscopic changes as secondary to the parathyroid dysfunction rather than of neoplastic origin.

CONCLUSIONS

Clinical hyperparathyroidism may give rise to functional impairment of the gastro-intestinal, renal, osseous and muscular systems. It causes excessive elimination of calcium salts in the urine, with increase of the serum calcium concentration. The bone salts are mobilized, and varied types of bone dystrophy may result; while most instances have been quite representative of osteitis fibrosa generalisata, some lesions have been histologically indistinguishable from giant cell tumors. The characteristics of the urine may simulate those of renal insufficiency. The clinical and laboratory data have led to exploration of the parathyroids in four instances, and in each the removal of a parathyroid adenoma has resulted in relief of symptoms.

A MANIPULATIVE METHOD OF TREATMENT FOR RECALCITRANT AND NEGLECTED CLUBFOOT *

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CHICAGO

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Whether congenital or acquired, the unsightly clubfoot can be corrected in the child, the adolescent or the adult without mutilation. Almost irrespective of age, the worst type of clubfoot can be converted into a normal foot by means of the method here described. The technic of the method is founded on principles that hold for all cases. The fundamental principles of treatment are based on an analysis of the anatomic and physiologic changes present in a clubfoot. A brief review of these changes will precede the description of the technic.

The common type of clubfoot has been described as a triple deformity—equinus, varus and cavus. The equinus usually predominates because it is the most obvious. The varus surpasses the others in importance. In fact the varus comprises three deformities—varus at the ankle, adduction at Chopart's, and inversion at Lisfranc's joint. The varus of the ankle is important because it is the last to respond to treatment and the most difficult to correct. The adduction or supination may be so severe that the external malleolus acts as the sole of the foot. The inversion of the anterior part of the foot is sometimes complicated by an inward rotation of the tibia. A part of the deformity frequently overlooked is the cavus. Failure to correct the high arch leaves a short foot. The severity of each part of the deformity varies with the individual, so that no two cases will appear exactly alike.

The acquired clubfoot occurs because of a disbalance in the musculature. With a paresis in the anterior group, the opposing achilles group will contract and draw the foot into equinus. The other components of the deformity are brought about in a similar way. The stronger group of muscles determine the final position of the foot. The ligaments, cartilage and bones take part in the deformity. Merely to put the foot into the position of choice, that is, the midposition, does not mean correction of the deformity; as long as the disbalance exists the deformity will recur.

The same tendency for recurrence exists in the congenital clubfoot and in an even greater measure. There is an inherent tendency for the foot to be in the clubbed

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position, which varies with the individual case from birth. This variability is independent of any nerve lesion which occasionally complicates the congenital clubfoot. Furthermore, experience has shown that the foot becomes more recalcitrant toward correction if the condition is partly corrected and then allowed to recur. Interrupted treatment increases the difficulty of correction. A clubfoot is therefore not corrected until the threefold deformity and the tendency for the deformity to recur are overcome.

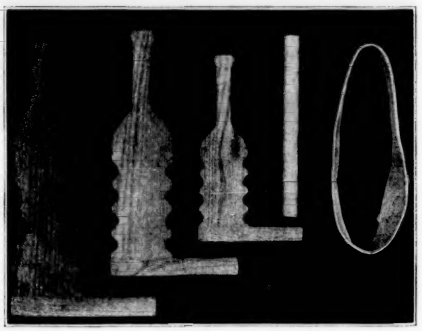


Fig. 1.—Manipulative foot boards with semielastic band and cylindric handle.

Any method that executes these two principles will give good results. The methods in use, if properly applied, can in most cases bring about complete correction of the clubfoot in infants and young children. First the inversion is corrected; then the foot is brought into abduction until there is a valgus position at the ankle. This correction brings with it a flattening of the longitudinal arch and correction of the cavus. Finally the foot is brought up to a right angle. Too often the attack is directed against the equinus, and the achilles tendon is divided. This takes away the counteracting force so necessary to correct the adduction and varus. The technic may differ but the foot must be brought into a position of eversion, abduction, valgus, flattened arch and slight dorsiflexion. This can be done by means of manipulation and plaster of paris, occasionally supplemented with the tenotome.

Overcorrection of the original deformity will not suffice; the foot must be held overcorrected. Any part of the deformity not fully corrected will grow worse. The child must bear weight and walk in the overcorrected position and thus literally stamp out any inclination for recurrence. Unfortunately the treatment is frequently not properly executed. Often it is interrupted, unsystematic, and left unfinished. Thus many cases of uncorrected clubfoot are seen long after the child has learned to walk. A limited number of recalcitrant feet will recur irrespective of treatment. There are still too many instances in which ignorance and neglect prevented treatment until adolescence or even adult life had been reached. It is to these difficult cases that the method to be described is particularly applicable. The foot can no longer be corrected by manual force, so surgery is used.

Many operations have been devised. No one operation can correct all the components of the deformity. Any radical type of surgery predisposes to a mutilated foot. The inherent tendency toward deformity cannot be removed by any operation as yet devised. The nearest approach to a true correction in these cases has been obtained by means of a special osteotome like the one in use at Biesalski's clinic. This instrument directs force against the various parts of the deformity, but it is a brutal machine which crushes cartilage and bone. The force is no longer felt to be in the hand of the operator. My method fulfils the requirements for correction and at the same time obviates the objections mentioned. It presupposes, in addition to a fundamental knowledge of clubfoot, a good plaster technic.

TECHNIC

The apparatus required consists of a special foot board, a strong semielastic band, and a simple cylindric bar (fig. 1). The foot board had best be made in at least three sizes. As may be seen from the illustration, the foot board terminates in a vertical handle. There is also a horizontal handle at the base. The board itself is notched on both sides. The manipulation is carried out under light anesthesia. The board is placed against the plantar surface of the foot. A piece of felt protects the dorsum of the foot while the band is fastened over the felt and in the grooves of the board. The cylindric handle is then passed through the loop of the band beneath the board (fig. 2). Twisting of the free handle takes up the slack. The board is screwed down to the foot like a Spanish windlass. The force is directed against the cavus. Gradually all the tissues are stretched until the foot lies flat on the board. An excellent purchase has been obtained on the foot. Tension is put on the achilles tendon by holding the upright handle; then with the horizontal handle the foot is twisted into abduction and valgus. The body weight of the operator can be brought to bear against the achilles group by means of the vertical handle. By means of leverage, a power sufficient to overcome the contracted tissues is placed under the control of the operator's hands.

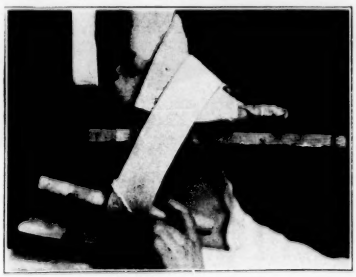


Fig. 2.—Foot board applied to foot.

The inversion is corrected over the triangular block. When the varus is extremely obstinate, the Thomas wrench can be used to advantage. The correction may be preceded by subcutaneous fasciotomies and tenotomies. With the foot in the overcorrected position, a form-fitting plaster-of-paris cast is applied. Only such correction as can easily be obtained after manipulation is gained, and retained by a plaster-of-paris cast. In

old recalcitrant clubfoot, very little visible correction can be gained after the first manipulation. In these cases the foot is held in a cast for from seven days to three weeks, depending on the resistance of the tissues. The manipulation is then repeated with a distinct improvement. The process is not complete until full correction has been obtained. In patients past adolescence, once the foot has been corrected there is little danger of recurrence. For the younger patients the rule of retaining the overcorrection until the tendency for recurrence is overcome still holds.

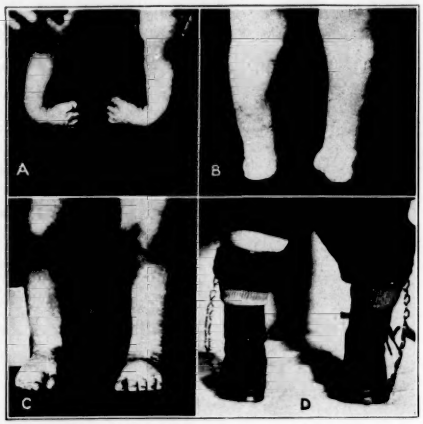


Fig. 3.—*A*, Neglected bilateral congenital clubfoot in a child 1½ years of age; *B*, casts removed after a single manipulation showing corrected feet; *C*, anterior view; *D*, shoes raised on outer side and use of spiral spring to hold abduction and eversion.

This method applies in the same way to the acquired talipes equinovarus. The underlying principles are the same as for the congenital clubfoot. The chief difference lies in the fact that, because of a paralysis, the disbalance of muscles is permanent. The tendency for recurrence, therefore, in most cases, cannot be overcome by exercises in the overcorrected position. In a few chosen cases the disbalance can be equalized by muscle transplants. In most cases as a result of paresis the foot is not only deformed but also unstable. The paralytic clubfoot can be stabilized by means of a brace, astragalectomy or arthrodesis. Before a brace can be applied effectively the foot must be corrected to the midposition. The brace is essentially an instrument of retention rather than correction. With the technic described, the acquired clubfoot can be manipulated into the correct position. The foot is then held in the position of choice by means of a brace. In recent years the brace has been replaced by stabilizing operations. To stabilize a foot with a marked deformity of long standing, a sacrifice of bone by the usual method was necessary. As a result, the foot suffered in function and in appearance.

When the condition of the foot has been corrected by the method described here followed by arthrodesis, a much better result is obtained. There is, furthermore, less likelihood of even the slightest recurrence of the deformity.

In cavus deformities of the foot, the application of this method in mild cases is sufficient to give correction. In severe cases the deformity is reduced and the foot lengthened as much as possible before the wedge is removed. A much longer foot and a decrease in loss of structure is the result.

Essentially the method described is the same as that which has been employed at the Caroline Institute under Professor Haglund for many years. Modifications of technic have been adapted to suit a difference in conditions, and some improvements have been introduced. The use of the method has been further developed to precede the triple arthrodesis operation. No serious complications are encountered in its application. Pressure sores do not occur. The pain usually subsides overnight and never lasts long enough to contraindicate a control with an anodyne. The treatment commends itself as being rational, simple and effective, and gives the best possible result. The following cases illustrate the application of the method in various conditions:

REPORT OF CASES

CASE 1.—*Recalcitrant clubfoot.* G. F., a boy, aged 4 years, admitted to St. Luke's Hospital, March 8, 1928, was born with bilateral clubfoot. From birth the left foot had been worse than the right. The patient had been treated for the deformity with casts, and at the age of 2½ years a tenotomy had been performed on the left achilles tendon. The child had been hospitalized previously on account of a pressure sore. When he was seen at the clinic there was a definite deformity of the feet, particularly of the left foot, which the mother said had been getting progressively worse. The patient was referred to the hospital for correction of the deformities.

The patient was a well developed child except for the lower extremities. The left foot had varus deformity of 3 on a basis of 1 to 4, equinus deformity 3, inversion 2 and cavus 2. The right foot had a varus 2, adduction 1 and inversion 1. The plantar fascia was thickened and shortened. The achilles tendon was short and inserted on the inner side of the midline on the calcaneus. There was atrophy of the calves, greater on the left side than on the right. A diagnosis was made of bilateral recurrent congenital clubfoot, with the left a recalcitrant type.

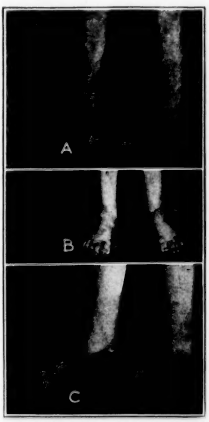


Fig. 4.—*A*, bilateral clubfoot in a woman, aged 23, with very marked deformities; *B*, *C*, two months after onset of treatment, showing correction with nearly normal length.

Under general anesthesia the feet were prepared in the usual manner. With a tenotome the plantar fascia was divided subcutaneously at the os calcis. The tenotome was reinserted more anteriorly to divide some fibers that were still tight after the first fasciotomy. The foot was then placed on the board and by means of the windlass screwed tight to correct the cavus. Then leverage was applied to correct adduction. The foot was worked until abduction and valgus could be easily obtained. The foot was placed over the triangular block and brought into eversion. Then a subcutaneous division was made of the inner two thirds of the achilles tendon just above the insertion; about an inch higher the outer two thirds

of the tendon was divided. The foot was brought up to right angles and the tendon could be felt to lengthen. The overcorrected position was held with a cast. The right foot was manipulated by means of the foot board and windlass, and overcorrection was soon obtained and retained with plaster of paris.

The child made an uneventful recovery and was dismissed from the hospital two days after operation. He had practically no pain. He was permitted to walk on the casts, which were protected by a tennis shoe. At the end of the fifth week the casts were changed; the feet were in overcorrection. A new cast was applied. Six weeks later he was given shoes with an outer arch. He has been seen at the dispensary at increasing intervals. When last seen, one year after operation, there were no signs of recurrence.

Fig. 5.—Congenital left clubfoot in a man.

CASE 2.—*Recurrent clubfoot after wedge osteotomy and arthrodesis.* J. P., an Italian boy, aged 10 years, was born with a left clubfoot. No treatment was carried out until the age of 18 months, when he had a manipulative correction. The foot was then neglected until an osteotomy was performed at the age of 8 years, following which he wore a cast for about six weeks. The deformity slowly recurred. The outer side of the shoe was then raised, but the deformity continued to increase. At 10 years of age the child was brought to the Research Hospital. The physical observations were normal except for the left lower extremity. The left foot was smaller than the right. The patient walked on the outer side of his foot. The foot showed an adduction deformity 2 on the basis of 1 to 4, varus 3, inversion 2, cavus 2 and equinus 1. The plantar fascia was thickened and short. The motion in the foot was limited. In spite of the previous operation and roentgen report of an arthrodesis in the area of the osteotomy, an attempt at correction by manipulation was advised before another open operation was resorted to. The foot was manipulated in the usual manner. A subcutaneous fasciotomy preceded the manipulation. The adduction, inversion and cavus were definitely improved. Three weeks later the cast was removed; the foot was more pliable. Further correction was possible, but the varus was exceedingly stubborn. Overcorrection of the varus was not possible, though a Thomas wrench was applied. The heel was nearly in midposition, yet the achilles tendon inserted well over to the medial side of the os calcis. A Sloman type of operation was then done. The capsule was extremely thick. The achilles tendon was lengthened and only the attachment of the outer half remained on the os calcis. A cast was worn for nine weeks. The patient walked on the cast after the first week. Later the outer side of the shoe was raised. The patient was seen a year and a half later and there was no tendency toward recurrence of the deformity.

CASE 3.—*Acquired clubfoot after anterior poliomyelitis with recurrent ulcer.* C. E., a white woman, aged 21, was admitted to the Research Hospital, Dec. 2, 1927, because of a deformed foot. The ankle was twisted, the toes were crooked and the foot was always cold. She had sores which tended to recur, and difficulty in walking. The present illness dated back ten years previous to admittance to the hospital. At that time she first noticed a tired feeling and tendency to drag the left foot. Two years previous to admission the patient was said to have had an attack of infantile paralysis. A cast was applied at the time of her trouble with the left foot and allowed to remain for three weeks. When the cast was removed, the ankle was no better and gradually became weaker until the patient limped considerably. There was never any swelling or redness, nor was the foot particularly tender. At 12 she wore a brace, which was discarded at 15 years of age; since then no brace had been worn. At 17 years she had an infection of a callus at the lateral edge of the head of the fifth metatarsal bone, which became chronic. A year later the bone was scraped. After six months she developed a sinus, and she then came to the University of Illinois dispensary. Soon afterward another sinus opened on the sole of the foot near the third and fourth metatarsal. She was treated at the dispensary for this at regular intervals. She was given hot baths, part of the callus was removed, and she wore pads in her shoes besides sterile dressings. The wounds healed slowly. The patient was referred to the hospital for operation.

Her history was essentially negative except for the present illness. Physical examination revealed some atrophy of the left calf and slight discoloration of the entire foot; the peroneal group and extensors of the toes and dorsiflexors of the foot were paralyzed; the tibialis posticus and, to a lesser degree, the tibialis anticus and extensor of the toes were contracted. The achilles tendon was shortened; the flexor hallucis was still active and tended to give a dorsiflexion contracture of the great toe. The deformity resulting was an adduction 3, talipes equinus 1, with cavus 2 and clawing of the toes 3. A roentgenogram of the foot and ankle showed part of the metatarsal and phalanges of the little toe missing; there was no evidence of any active bone or joint disease.

The preoperative diagnosis was postparalytic deformity of the left foot; loss of function, increased by deformity, and calluses due to deformity. For better function and cosmetic reasons, correction of the deformity was advised.

Under ether anesthesia, a plantar fasciotomy was first performed with the closed method. The foot was then screwed down by means of a specially devised foot board, a strong girdle and tourniquet to correct the cavus. Then, by means of handles on the board, leverage was brought into play so that the foot was slowly twisted into abduction and brought up into dorsiflexion. A Z type of tendon lengthening was done subcutaneously after the manner of Bayer on the achilles tendon. The manipulative movements were repeated until the muscles were stretched and the foot could be easily brought into the overcorrected position. The toes still tended to contract, so subcutaneous tenotomies of the flexor tendons were performed at the base of the second, third, fourth and fifth toes. This was insufficient, so the capsules were incised. Then a small incision was made over the extensor hallucis longus; this tendon was divided, as was also the capsule. The tendon was then transplanted to the head of the first metatarsal and the wound closed. The foot was put up in an overcorrected position with the toes extended, the foot just above a right angle and in abduction and slight eversion as well as slight valgus at the heel, by means of a well molded plaster-of-paris cast which extended out to the tip of the toes and up to the knee.

A B C

Fig. 6.—Appearance of patient shown in figure 5: *A*, posterior view; *B*, anterior view of corrected foot three months after onset of treatment; *C*, posterior view of corrected foot.

The temperature remained normal throughout the patient's stay in the hospital. The foot was kept elevated. On the fifth

day she was up in a wheel-chair; on the twelfth day she was allowed to be up and about. She left the hospital at the end of four weeks. The cast was split in the dispensary and the foot found to be in good condition. The cast was gradually left off more and more; after the fifth week the patient walked with a shoe and was greatly pleased with the improvement, both in function and in appearance. No recurrence of the painful calluses had appeared one year later.

CASE 4.—*Pes cavus with equinus, the result of a dysplasia.* H. D., a white girl, aged 10 years, admitted to St. Luke's Hospital, March 15, 1928, began to walk on the toes of her left foot three years previous to the time of examination, according to the parent's statement. There was no acute illness prior to the onset of the deformity. The foot had previously been perfectly normal. The deformity had evidently been getting worse, although the progress had been so slow that it had not been noticed by the mother. The child had been walking with a limp but had been very active. Her past history was essentially negative.

At examination, the patient appeared fairly well developed; she was alert and cooperative, and appeared to be normal mentally. There was a marked cavus and equinus of the left foot; no varus or valgus was present. The toes of the left foot were extended at the metatarsophalangeal joints. Dorsiflexion was limited to 30 degrees below the right angle by a shortened achilles tendon. The cavus could be partially corrected by passive motion, but this revealed a thickened and shortened plantar fascia. The right foot was normal except for a rather high arch. Biceps, patellar and ankle reflexes were brisk on both sides. No ankle clonus was present; there was a Babinski reflex and Oppenheim 2. Roentgenograms of the lumbosacral spine showed the posterior arches of the lower lumbar vertebrae poorly developed.

Under general anesthesia the skin was prepared with iodine and alcohol. A tenotome was inserted at the insertion of the plantar fascia on the os calcis, and the fascia, which seemed thickened, was divided. There were still some contractures present farther forward. The tenotome was inserted and these were divided. Following this a subcutaneous lengthening of the achilles tendon was performed. The outer two thirds of the tendon was cut just above the attachment and about 1 inch higher, and the inner two thirds was divided. The foot was then dorsiflexed and the tendon was felt to slip. To correct the cavus further the foot was fastened on a board and, with the skin protected, it was screwed down with a Spanish windlass. Correction was obtained and the foot was put up in the corrected position by means of a plaster-of-paris cast.

There was practically no postoperative pain. The patient was discharged on the fourth day. She was allowed to walk on the cast, which previously had been reinforced to make a walking cast. She was seen each week at the outpatient clinic. At the end of the fourth week the cast was released. The foot seemed normal except for weakness and tenderness. When she was seen a year later the deformity had not recurred and the one foot was as good as the other.

30 North Michigan Avenue.

Pain and the Spine.—Certain orthopedic conditions cause spinal cord and root irritation from pressure. Of these, spinal arthritis is the most common and not infrequently presents considerable difficulty in the differential diagnosis. Occasionally the roentgenologist discovers spinal arthritis while making a gastro-intestinal study. This spinal condition is to be distinguished from pathological lesions, especially of the upper abdomen, and ureteral colic. Pain over the diseased vertebra, limitation of motion with tenderness of the spine and the roentgenographic findings are confirmatory. When Pott's disease becomes extensive, damage to the spinal cord and the spinal roots ensues, causing pain which is felt in the peripheral nerves. The pain is severe and at times distressing and misleading. In children a pain coming on suddenly, which is of longer duration than is usual in acute abdominal conditions and persistently worse at night, should prompt one to look beyond the abdominal region for pathology.—Masters, H. R.: Abdominal Pain and Its Relation to Neurological Diseases, *Virginia M. Monthly*, July, 1929.

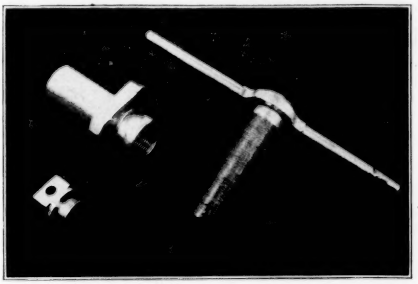
GLAND CULTURES IN INFECTIOUS ARTHRITIS *

MARY A. POSTON
BALTIMORE

Glands removed in the department of orthopedics of the Johns Hopkins Hospital by Dr. William S. Baer from patients with infectious arthritis have been sent immediately to the biologic division of the medical clinic for culture. This note is made on account of numerous requests for the method and to record the positive observations.

METHOD

By previous arrangement the necessary mediums and instruments are ready for the preparation of the cultures of the gland immediately after removal. If other work prevents immediate culture, the glands are moistened with sterile isotonic salt solution, previously warmed to 37 C., and placed in the incubator. The glands are rinsed twice with warm isotonic salt solution and ground in the sterile tissue press shown in the accompanying illustration. Then 1 cc. of beef-infusion-



Tissue press.

broth p_H 7.4 is added with a pipet while the ground gland remains in the press and suspension accomplished by blowing back and forth.

Two cubic centimeters of sterile human ascitic fluid and 0.2 cc. of the gland suspension are added to each of two tubes containing 15 cc. of molten beef-infusion-dextrose-agar p_H 7.4, cooled to 40 C. Each mixture is transferred to Noguchi tubes 14 by 200 mm. and overlaid with 1 cc. of sterile petrolatum. The tubes are incubated at 37 C. and examined by transmitted light daily. All tubes are kept for six weeks before being reported as negative. To pick colonies from deep tubes, the column of agar is transferred to a sterile Petri plate in the following manner: A sterile 8 mm. glass tubing with a 1 mm. thick wall is drawn out in the gas flame to make a capillary tube at least 25 cm. long; the large end is inserted into a 50 cc. rubber pressure bulb and the capillary warmed by passing through a flame. The capillary is pushed between the column of mediums and the wall of the tube until the butt is reached. Pressure is applied to the bulb while the butt end of the tube is held over the flame. As soon as the column is dislodged, more air is forced into the butt and the column will slip easily by gravity into the Petri plate. The colonies are picked under a dissecting microscope and trans-

* From the Biological Division of the Medical Clinic, Johns Hopkins University and Hospital.

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ferred to tubes of beef infusion blood broth, which are incubated anaerobically.

Parallel cultures from the gland are prepared by adding 0.2 cc. of the suspension to rabbit blood agar plates, beef infusion dextrose blood broth and ascitic fluid dextrose agar slants.

Vaccines of these organisms consist of a forty-eight hour beef infusion broth culture heated to 60 C. for one hour. After heating, a culture is made from the vaccine to make certain that it no longer contains viable organisms.

RESULTS

Of 120 glands sent in for culture, growth was obtained from seventy-two (60 per cent). The organisms recovered were *Streptococcus viridans*, sixty-seven; *Streptococcus nonhemolyticus*, two; *Staphylococcus aureus*, two, and *gonococcus*, one.

The shortest period before the colonies were visible was two days and the longest was eighteen days.

The *Streptococcus viridans* cultures are being studied for biologic and immunologic grouping.

SUMMARY

1. Bacteria were obtained from seventy-two, or 60 per cent, of 120 glands of which cultures were taken by the method described here.

2. Ninety-three per cent of the organisms grown belonged to the *Streptococcus viridans* group.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, SECRETARY.

VIOSTEROL

Investigators working with various sterols discovered that ergosterol (originally derived from ergot but now obtained from other substances, mainly yeast), in crystalline form or in solution, when subjected to ultraviolet radiation develops an antirachitic (vitamin D) potency enormously greater than that of cod liver oil. For therapeutic use the ergosterol after irradiation is usually dissolved in a vegetable oil. The Council has adopted the term viosterol to designate irradiated ergosterol, and viosterol in oil to designate a preparation containing this substance dissolved in oil. The Council has also provisionally adopted the qualifying phrases 100 D, 5 D, etc., to designate the vitamin D potency of the various preparations as multiples of the vitamin D potency of good cod liver oil. The potency of viosterol preparations is measured by the methods used for determining the vitamin D potency of cod liver oil.

Viosterol is for use in prophylaxis and treatment of rickets and, experimentally, in other conditions arising from faulty calcium and phosphorus assimilation. It should be borne in mind that viosterol does not contain vitamin A and that harm from hypercalcemia may result from the use of too large doses of the substance.

VIOSTEROL IN OIL 100 D.—Irradiated Ergosterol in Oil.—Activated Ergosterol in Oil.—Viosterol dissolved in a vegetable oil and standardized to contain 1,333 rat units of vitamin D in each Gm., this strength being 100 times that of a potent cod liver oil used as a standard.

Actions and Uses.—See preceding article, Viosterol.

Dosage.—Daily prophylactic dose for the average infant and child, 8 to 10 drops (0.1233 to 0.1666 cc.: 2⅔ to 3⅓ minims); for the premature and rapidly growing infant, 15 drops (0.25 cc.: 5 minims); daily curative dose, 15 to 20 drops (0.25 to 0.333 cc.: 5 to 7 minims); in severe cases and for adults, doses in excess of 20 drops may be given. The marketed preparations are accompanied by a standard dropper designed to deliver 3 drops to the minim.

Viosterol in oil 100 D is standardized by comparison with a potent cod liver oil containing in each 0.75 mg. 1 rat unit of vitamin D, the rat unit being defined as that amount of vitamin D which, when uniformly distributed into the standard vitamin D deficient diet—ration 2965, *Jour. Biol. Chem.* **64**: 263, 1925—will produce a narrow and continuous line of calcium deposits in the metaphyses of the distal ends of the radii and ulnae of standard rachitic rats.

Viosterol-Abbott.—A brand of viosterol in oil 100 D, N. N. R.

Manufactured by The Abbott Laboratories, North Chicago, under U. S. patent 1,680,818 (Aug. 14, 1928; expires 1945) by license of the Wisconsin Alumni Research Foundation.

Viosterol-Abbott is prepared by dissolving ergosterol in anhydrous, peroxide free ether-U. S. P.; the solution is filtered, placed in transparent quartz containers with reflex condensers, and exposed to ultraviolet rays at a determined distance and intensity for a determined length of time. The irradiated ergosterol, freed of ether and dissolved in maize oil, is biologically assayed and adjusted to have the potency of viosterol in oil 100 D, N. N. R.

Parke, Davis & Co.'s Viosterol.—A brand of viosterol in oil 100 D, N. N. R.

Manufactured by Parke, Davis & Co., Detroit, under U. S. patent 1,680,818 (Aug. 14, 1928; expires 1945) by license of the Wisconsin Alumni Research Foundation.

Parke, Davis & Co.'s Viosterol is prepared by dissolving ergosterol in warm alcohol; the solution is then irradiated by exposure to ultraviolet rays at a determined distance and intensity; after irradiation the solution is chilled and the crystalline ergosterol removed by filtration; the filtrate is dried under vacuum; it is then dissolved in maize oil and adjusted to have the potency of viosterol in oil 100 D, N. N. R.

Viosterol-Squibb.—A brand of viosterol in oil 100 D, N. N. R.

Manufactured by E. R. Squibb & Sons, New York, under U. S. patent 1,680,818 (Aug. 14, 1928; expires 1945) by license of the Wisconsin Alumni Research Foundation.

Viosterol-Squibb is prepared by dissolving ergosterol in ether; the solution is then irradiated by exposure to ultraviolet rays; after assay of the irradiated ergosterol for its antirachitic potency, it is dissolved in maize oil and adjusted to have the potency of viosterol in oil 100 D, N. N. R.

COD LIVER OIL WITH VIOSTEROL 5 D.—Viosterol dissolved in cod liver oil, the solution containing not less than 400 vitamin A units per Gm. when tested by the pharmacopeial method and 66.65 rat units of vitamin D per Gm., this antirachitic strength being 5 times that of a potent cod liver oil used as a standard.

Actions and Uses.—See preceding article, Viosterol. Cod liver oil with viosterol 5 D is proposed for use in conditions in which it is desired to supplement the administration of vitamin A with that of vitamin D.

Dosage.—For infants and young children, 2.5 to 3.3 cc. (53 to 67 minims) daily; for adults and in severe cases doses up to 7 cc. (140 minims) or more are given.

Cod liver oil with viosterol 5 D is prepared by addition of irradiated ergosterol to cod liver oil in such proportion that the finished product will contain not less than 400 vitamin A units per Gm. when tested by the pharmacopeial method, and 66.65 rat units of vitamin D per Gm., the rat unit being that amount of vitamin D which, when uniformly distributed into the standard vitamin D deficient diet—ration 2965, *Jour. Biol. Chem.* **64**: 623, 1925—will produce a narrow and continuous line of calcium deposits in the metaphyses of the distal ends of the radii and ulnae of standard rachitic rats.

Abbott's Viosterol Cod Liver Oil.—A brand of cod liver oil with viosterol 5 D, N. N. R.

Manufactured by the Abbott Laboratories, North Chicago, under U. S. patent 1,680,818 (Aug. 14, 1928; expires 1945) by license of the Wisconsin Alumni Research Foundation.

Irradiated ergosterol, prepared by the method described under viosterol-Abbott, is added to cod liver oil and the finished product is required to have a vitamin A potency of not less than 500 pharmacopeial units and to have the vitamin D potency of cod liver oil with viosterol 5 D, N. N. R.

Squibb's Viosterol Cod Liver Oil 5 D.—A brand of cod liver oil with viosterol 5 D, N. N. R.

Manufactured by E. R. Squibb & Sons, New York, under U. S. patent 1,680,818 (Aug. 14, 1928; expires 1945) by license of the Wisconsin Alumni Research Foundation.

Irradiated ergosterol, prepared by the method described under viosterol-Squibb, is added to cod liver oil and the finished product is required to have a vitamin A potency of not less than 500 pharmacopeial units and to have the vitamin D potency of cod liver oil with viosterol 5 D, N. N. R.

Squibb's Viosterol Cod Liver Oil 5 D, Mint-Flavored.—A brand of cod liver oil with viosterol 5 D, N. N. R. containing 0.67 per cent of oil of spearmint as flavoring.

Manufactured by E. R. Squibb & Sons, New York, under U. S. patent 1,680,818 (Aug. 14, 1928; expires 1945) by license of the Wisconsin Alumni Research Foundation.

Irradiated ergosterol, prepared by the method described under viosterol-Squibb is added to cod liver oil containing 0.67 per cent of oil of spearmint as flavoring and the finished product is required to have a vitamin A potency of not less than 500 pharmacopeial units and to have the vitamin D potency of cod liver oil with viosterol 5 D, N. N. R.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, AUGUST 31, 1929

VIOSTEROL: IRRADIATED ERGOSTEROL

The demonstration that many food materials can acquire unique physiologic potencies when the products are subjected to the direct influence of ultraviolet rays or even to concentrated sunlight is a contribution of recent scientific investigation. The effects of the irradiated substances within the body are identical with, or equivalent to, those that have been ascribed to vitamin D, the antirachitic food factor. The latter is known to induce the healing of rickets or to prevent the latter when suitable foods containing vitamin D, such as cod liver oil, are employed in a prophylactic way. Tetany and probably other diseases may be favorably influenced in a comparable manner. As might have been expected, investigators were not slow in searching for the chemical entities that represent the potent principle and its precursor in "unactivated" foods. Success came with unexpected speed, so that more than three years ago ergosterol, a sterol widely present in small amounts in most edible products, was announced as the "provitamin," or substance that acquires antirachitic potency after suitable irradiation. The names of Windaus and Hess, Rosenheim and Webster, are conspicuous in the history of the biologic researches on ergosterol; Steenbock also has attained distinction in the earlier discovery of the "activating" effects of ultraviolet rays on foods.

It was inevitable that a product possessing the remarkable action of irradiated ergosterol and readily obtainable through commercial channels as well as in the laboratories of scientists should attract attention in the fields of therapy and prophylaxis. Almost as a corollary the danger of quackery follows in the wake of important scientific discoveries, particularly when, as in the case of irradiated ergosterol, the product possesses enormous potency. The truthful statement that a few milligrams of irradiated ergosterol may exhibit an antirachitic effect equal to that of quarts of cod liver oil presents an item to be conjured with. Many persons hastened to take advantage of the situation presented at a time when the prophylactic use of cod liver oil had become nation-wide in this country. Products of all sorts and varied descriptions capitalizing the new discoveries were prepared for the market, long before the proper fields of usefulness, the limitations, the appropriate dosages and the presumable dangers of irradiated ergosterol had been adequately ascertained.

Many of these promotions have been of a legitimate character and have been sponsored by reputable drug manufacturers. To avert the almost inevitable confusion and to exercise a wholesome restraint over the exploitation incident to the introduction of the new product into clinical use, the Council on Pharmacy and Chemistry of the American Medical Association has followed its usual custom of adopting a common name, viosterol, for irradiated ergosterol. It has recognized two preparations of this substance, namely, viosterol in oil 100 D (N. N. R.), having 100 times the antirachitic potency of a standard cod liver oil; and cod liver oil with viosterol 5 D (N. N. R.), being cod liver oil with the addition of viosterol and having five times the antirachitic potency of a standard cod liver oil. Standards of identity, dosage, and suggestions for therapeutic use of this substance are discussed in the current issue of THE JOURNAL.[1] A timely study on the status of the therapeutics of viosterol by Hess, Lewis and Rivkin[2] emphasizes anew that, on the one hand, vitamin D must be regarded as "one of the most remarkable of specifics," and, on the other, that a product of such marked potency must be prescribed with caution so far as the quantitative aspects of dosage are concerned.[3]

The Council on Pharmacy and Chemistry early appreciated the possibilities of harm from the careless overuse of irradiated ergosterol—features that have been stressed by numerous investigators in experiments on animals. True, the untoward results usually obtained were due to the administration of several thousand times the minimum curative dose for rachitic animals on an inadequate diet. Yet so long as this represents the equivalent of one or two milligrams only, one can readily appreciate how easily the bounds of adequacy can be overstepped by carelessness in the administration of concentrated viosterol preparations. The use of products accepted for New and Nonofficial Remedies, according to the advices in the Council's report, is likely to avert any undesirable consequences. Hypercalcemia, which is the chief manifestation of the toxic reaction, is readily detected by blood analysis. Its significance is clearly portrayed in the paper by Hess, Lewis and Rivkin. The insistence of these clinicians on the use of standardized preparations tested by biologic methods is in harmony with the Council's requirements for accepted viosterol-containing products.

1. Viosterol, this issue, p. 693.
2. Hess, A. F.; Lewis, J. M., and Rivkin, Helen: The Status of the Therapeutics of Irradiated Ergosterol, this issue, p. 661.
3. The Danger of Irradiated Ergosterol, editorial, J. A. M. A. **90**: 2105 (June 30) 1928; The Precursor of Vitamin D: Ergosterol, ibid. **91**: 1110 (Oct. 13) 1928; Hypervitaminosis, ibid. **92**: 1270 (April 13) 1929; Irradiated Ergosterol—A Reminder, ibid. **92**: 2023 (June 15) 1929.

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The possible fields of usefulness for viosterol in therapy and prophylaxis cannot be said to have been finally determined. In addition to its established uses, Hess and his collaborators believe that viosterol should prove efficacious in osteomalacia. Vigorous efforts are being made to promote the use of the drug in dental caries. Mellanby has given a favorable report from England. However, until further evidence is available it seems rational to subscribe to Hess's assertion that the main etiologic factor in dental caries is not rickets and therefore caries will not be eradicated by any antirachitic agent, however potent.

THE DISTRIBUTION OF ENDEMIC GOITER

The demonstration of the widespread incidence of edemic goiter in the United States as well as in foreign countries, where the occurrence of thyroid enlargement during adolescence has long been known, has helped greatly to develop an interest in methods of prophylaxis. The statistics gathered during the draft examinations in connection with the World War were particularly impressive because they included the records of more than two and a half million young men within the ages of fitness for military service. The ratio per thousand examinations ranged, for the different states of the Union, from 26.9 to 0.25. This fact of itself serves to indicate that there are great differences in the occurrence of goiter in different regions; and there are today numerous indications of wide variation in the distribution of endemic goiter within the individual states. Since the period when the war-time data were secured, goiter surveys have been conducted among thousands of school children in many parts of the country. These additions to our information regarding the epidemiology of goiter have been reviewed recently by Olesen [1] of the U. S. Public Health Service, with the conclusion that the distribution of adolescent goiter parallels, in general, the goiter found among drafted men. This means widespread inequalities in the occurrence of the disorder—a circumstance that deserves careful consideration with reference to prophylactic measures. The latter have become popular, and not without reason. If the provision of minute amounts of iodine to adolescents will suffice to avert physiologic defects, there is occasion for introducing preventive measures in the most effective way. This does not necessarily mean that wholesale procedures should be instituted everywhere. There is at present a possibility, if not even a real danger, that enthusiasm for goiter prophylaxis may lead to the overdoing of iodide medication. Iodized salt, iodized water supplies and iodized foods, as well as special routine dosage with iodine-bearing drugs, give an opportunity for unnecessarily large provision of the essential halogen element in places where the naturally available food and drink amply suffice to protect the growing person from danger of shortage and consequent goiter. The danger, perhaps usually remote, of hyperthyroidism from oversupply of iodine has already been referred to in these columns.[2] Among the drafted men of the World War in this country simple goiter was most frequent among those coming from sparsely settled districts having a population of three or less inhabitants per square mile of territory; it was next most frequent among men living in mountainous districts, and it was rarest among those from the agricultural and maritime sections of the country. There was almost a complete parity of goiter incidence between the urban and rural districts, despite wide variations in individual sections. It is significant that, according to Olesen, based on incidence, wholesale prophylaxis for endemic goiter is apparently not required in all states. Individual thyroid surveys disclose foci of endemic goiter, he reports, in localities not previously regarded as being located in goitrous territory. It would seem to be the part of wisdom, therefore, for the prophylactic measures in different localities to be determined by the indications and information available to the health authorities and physicians in each region. There is, further, real sanity in Olesen's added advice that resurveys are desirable for the purpose of learning the extent and character of the changes occurring either under natural conditions or after prophylaxis has been instituted.

1. Olesen, R.: Distribution of Endemic Goiter in the United States as Shown by Thyroid Surveys, Pub. Health Rep. **44**: 1463 (June 21) 1929.

ACRIFLAVINE HYDROCHLORIDE AND ACRIFLAVINE BASE

In his classic studies on trypanosome infections, Ehrlich found that the acridine dyes were quite effective. During the war, the popularity of the acridine dyes increased. Of the many antiseptics and germicides introduced at that time, acriflavine hydrochloride and acriflavine base are still widely used in therapy. The free base, *3:6 di*amino-*10*-methyl-acridinium chloride was called "Trypaflavine" by Ehrlich. In England and in this country, however, the hydrochloride is commonly known as acriflavine, although the free base (which has also the designation of "neutral" acriflavine) sometimes goes under the same name. Since 1919, the Council on Pharmacy and Chemistry has had standards for these two products. A number of years ago it became evident that the standards were not adequate. Also some American authors asserted that the foreign product was superior to the domestic. In view of this, the American Medical Association chemical laboratory about three years ago began a study of the various commercial brands of acriflavine hydrochloride and acriflavine base. Four articles, completing the studies on this subject, by Collins and by Collins and Stasiak,[3]

2. The Danger of Irradiating Foods, editorial, J. A. M. A. **88**: 1485 (May 7) 1927; Limitations of Goiter Prophylaxis, ibid. **89**: 114 (July 9) 1927.

3. This work was done by Dr. Stasiak as a fellow of the International Health Board of the Rockefeller Foundation. As Dr. Stasiak's time in the United States was limited, she was unable to finish the work.

have just been published in the *Journal of the American Pharmaceutical Association*.[4] As a result of their comparison of the various American and European brands of acriflavine hydrochloride (acriflavine) and acriflavine base ("neutral" acriflavine), these investigators conclude that there is not sufficient difference in the purity to justify the statement that the foreign product is superior to the domestic, even though at times the brands differ in appearance. As these medicinal dyes impart an intense color to solutions, it was necessary to determine acidity by the use of the hydrogen electrode. It was found, as was expected, that acriflavine hydrochloride, although it contains two atoms of chlorine, is a mono-chloride-mono-*hydro*chloride, and not a di-*hydro*chloride, as stated on the label of some of the products and as has appeared at various times in the literature. Furthermore, it was found that acriflavine hydrochloride and acriflavine base did not contain water of crystallization; the formulas showing water of crystallization had been included in the original standards and appear frequently in the literature.

An interesting sidelight was the fact that acriflavine hydrochloride, on being dried in an ordinary oven, not only gave up moisture but gave up hydrogen chloride as well; in fact, if heated sufficiently long at 100 C., the hydrogen chloride was evolved quantitatively. This demonstrated that acriflavine hydrochloride solution is distinctly acid in character and physicians should not lose sight of the fact that the solution will have the characteristics of a dilute solution of hydrochloric acid, as well as that of the dye. Even in the case of a solution of acriflavine base (so-called neutral acriflavine) Collins found that while the titratable acidity was practically nil, in comparison with acriflavine hydrochloride solution, the acriflavine base as marketed imparted an acid reaction in the range of a p_H from 3 to 5. The suggestion is logically made, therefore, that the hydrochloride should be designated by physicians in prescriptions and in the medical literature as acriflavine hydrochloride (not just acriflavine), and that the acriflavine base should be called acriflavine base and not "neutral" acriflavine. Two years ago, after these investigations were started, the scientific names here recommended were adopted by the Council for New and Nonofficial Remedies.

The series of articles, which contain many technical data, particularly for the purpose of rigorous standardization, is another illustration of the service of the Association's Chemical Laboratory. The standardization of drugs is not always easy. The medicinal dye standards by Collins illustrate some of the difficulties confronting the investigators of new drugs. The standards will undoubtedly be welcomed by the workers in pharmaceutic chemistry. Such work not only aids the medical profession in a better understanding of the newer drugs but serves to inspire confidence in the nonofficial drugs which have been standardized by the American Medical Association chemical laboratory and accepted by the Council on Pharmacy and Chemistry for inclusion in New and Nonofficial Remedies.

4. Collins, G. W., and Stasiak, Aranka: I. Chemical Examination of Different Brands of Acriflavine Hydrochloride and Acriflavine Base, J. Am. Pharm. A. **17**: 659 (July) 1929. Stasiak, Aranka: II. Examination of "Acriflavine," ibid., p. 660. Collins, G. W.: III. Further Observations on Acriflavine Hydrochloride, ibid., p. 661; IV. Examination of Acriflavine Base, ibid., p. 665.

Current Comment

TULAREMIA IN RUSSIA

Ten years ago, Edward Francis discovered that "deer-fly fever" was caused by the transmission of *Bacterium tularense* from infected rodents to man. Until 1926, when Francis and Moore [1] demonstrated that "Ohara's disease" in Japan and tularemia were identical, it appeared that tularemia was strictly an American disease. Recent reports from the Union of Socialistic Soviet Republics indicate that tularemia is probably world-wide in its distribution. Nikanorov [2] has described three extensive outbreaks of tularemia, involving more than 1,000 persons, in three Russian provinces. The Russian cases of tularemia introduce a new animal host and transmitter of the disease—the European water vole, or water rat (*Arvicola amphibius*). The fur of the water rat is highly prized for its commercial value. Floods during the spring of 1928 drove the water rats ashore in great numbers. The inhabitants welcomed the opportunity to obtain them. It is customary to catch the water rats by throwing a slender barbed harpoon, which enters the body of the animal readily but is withdrawn with considerable difficulty. Consequently, the hands of the harpooners are bathed with blood, thus providing an ideal source of infection. Suvorov, Wolferz and Voronkova,[3] attached to the antiplague laboratory of Astrakhan, have described 200 cases among human beings in that province. These investigators inoculated guinea-pigs, white mice and ground squirrels with material from the suppurating lymph nodes of human beings. The animals died within a few days and examination revealed the typical "spotted spleen" and "spotted liver" of tularemia. From the inoculated animals they recovered a gram-negative, nonmotile coccus on cystine-dextrose agar; these organisms were promptly agglutinated by the serum of convalescent patients. Golov, Kniazevsky, Berdnikov and Tiflov [4] have described 105 cases in several villages situated along the Ural River. Ninety-six water rats were captured and examined by these workers. Guinea-pig inoculations resulted in the reproduction of the disease and the recovery of an organism regarded by the writers as identical with *Bacterium tularense*. George McCoy, director of the Hygienic Laboratory of the United States Public Health

1. Francis, Edward; and Moore, Dunlop: Identity of Ohara's Disease and Tularemia, J. A. M. A. **86**: 1329 (May 1) 1926.

2. Nikanorov, S. M.: Tularemia in North America and Tularemia-Like Disease in U. S. S. R., Rev. de microbiol., d'épidémiol. et de paristol. **7**: 289, 1928 (Russian text, English abstract).

3. Suvorov, S. V.; Wolferz, A. A., and Voronkova, M. M.: Plague-Like Lymphadenitis in the Rayon of Astrakhan, Rev. de microbiol., d'épidémiol. et de parisitol. **1**: 293, 1928 (Russian text, English abstract).

4. Golov, D. A.; Kniazevsky, A. N.; Berdnikov, V. A., and Tiflov, V. E.: Plague-Like Infections (Tularemia?) in the Region of the Basin of the Oural in the Spring of 1928, Rev. de microbiol. d'épidémiol. et de parisitol. **7**: 301, 1928 (Russian text, French abstract).

Service, at Washington, D. C., has recently received the serum of a patient thought to have acquired tularemia in Perm, U. S. S. R. McCoy found that the serum agglutinated *Bacterium tularense* and he succeeded in isolating *Bacterium tularense* from guinea-pigs which he inoculated with guinea-pig spleen tissue received from the same source. Four of the Russian investigators acquired the disease during the course of the experimental work. This brings the total number of laboratory infections to twenty-four. Fifteen of the victims have been workers in the United States Public Health Service.

DENATURED VACCINES

One of the basic hypotheses of vaccine therapy is the assumption that the artificial immunity produced by killed cultures, bacterial autolysates and other microbic products is necessarily specific for the living microorganisms from which the vaccines were obtained. Nevertheless, commercial exploitation almost invariably overlooks or neglects the fact that such vaccines, while demonstrably antigenic, may be so altered in specificity as to be inoperative against the living micro-organisms. Here is a conceivable factor for the clinical failure of many vaccines. A striking example of specific denaturization of vaccines has been recently reported by O. I. Cutler,[1] fellow of the National Research Council, Department of Pathology, University of Chicago. Cutler finds that bacteria treated with certain chemicals "may be changed so that new antigens are formed to which rabbits respond by the production of antibodies specific for the altered bacteria." These antibodies, which are "different from those formed for live organisms, were not demonstrated to be bactericidal for live bacteria."

ACQUIRED POLLEN HYPERSENSITIVENESS

In order to account for acquired pollen hypersensitiveness, clinicians usually assume that at some previous time the patient has inhaled, has swallowed or has otherwise been inoculated with a specific pollen. According to this hypothetic etiology the patient should be equally hypersensitive to the individual proteins of this pollen, assuming, of course, that these proteins are all equally antigenic. That such patients are not thus equally hypersensitive appears from a recent report by Drs. Rappaport and Johnson of the Laboratory of Physiological Chemistry, University of Illinois.[2] These investigators find, for example, that patients hypersensitive to common ragweed give marked cutaneous reactions to common ragweed globulin but no demonstrable reaction to an equal dose of common ragweed albumin. With giant ragweed the conditions are reversed, the sensitization being "almost completely limited to the albumin fraction." Their observations throw doubt on the common assumption that acquired pollen hypersensitiveness is due to previous exposure to a specific pollen, and equal doubt therefore on the rationale of current methods of antiallergic therapy.

1. Cutler, O. I.: Immune Reactions to Acid Treated Bacteria, J. Infect. Dis. **44**: 203 (March) 1929.
2. Rappaport, B. F., and Johnson, C. A.: Fractionation of Pollen Proteins and Their Skin Reactions on Sensitive Individuals, Proc. Soc. Exper. Biol. & Med. **46**: 771 (June) 1929.

BEARDED LADIES AND SUPERFLUOUS HAIR

The anomaly which a few hardened harridans turn to profit in the side shows is to many women a source of the gravest distress. Even the shadow of a masculine embellishment on the upper lip may so torture a girl with self-consciousness that she will confine herself as a recluse rather than face the imagined curiosity of those that pass. Especially is this the case when the first evidence of hypertrichosis does not appear until late in adolescence. The proper handling of such patients, both psychologically and therapeutically, is a heavy tax on the wisdom of the medical adviser. A French physician,[1] discussing the nature and treatment of this complaint, points out that the physician must not overlook the danger of a subsequent suit for damages, since the French courts of late have shown themselves unsympathetic to those performing cosmetic operations that have resulted in injury to their patients. A rational therapy must first be based on a thorough investigation of the endocrine system, the physician remembering that not only the ovaries but also the thyroid, the suprarenal, the pituitary and the pineal glands may be involved. Indeed, Achard has described diabetes associated with female virility, which suggests that the endocrine dysfunction in these cases may sometimes involve even the pancreas. When investigation discloses definite tumor or infection in one or another of the ductless glands, subsequent prognosis and treatment may be related to the pathologic condition. In cases in which the cause is less definite, Ramond is still inclined to resort to glandular therapy, not because any brilliant result is to be expected but because such treatment is usually innocuous and gives encouragement to a patient badly in need of that commodity. He is careful to warn his patients not to use depilatories containing the sulphates of calcium or barium, which are irritant without being effective. He warns emphatically against ointments made with thallium acetate, which not infrequently result in a polyneuritis as well as alopecia. Radiotherapy he holds to be dangerous in doses which are effective in destroying the hairs. The atrophies and telangiectases resulting from overdosage are often more disfiguring than the original growth of hair, and there is always the ultimate danger of provoking a cancer. He allows his patients to bleach the hairs by applying hydrogen dioxide on absorbent cotton for five minutes daily, though he adds that the dioxide is usually more or less acid and will cause erythema in time. He advises electrolysis for those who can afford to take many treatments from a specialist and who have the patience and the courage to endure this painful treatment. To others Ramond recommends either shaving or extirpation, thus apparently agreeing with Gaucher that shaving does not, as is commonly believed, cause any increase in the growth of the beard. It is perhaps important, while giving the patient encouragement with regard to her personal appearance, to warn her of the likelihood that in marriage she may prove to be sterile.

1. Ramond, Louis: Virilisme Pilaire, Presse méd. **37**: 821 (June 22) 1929

Association News

MEDICAL BROADCAST FOR THE WEEK

The American Medical Association Morning Health Talks and Evening Health Hints from Hygeia

The American Medical Association broadcasts daily at 11:15 in the morning, Chicago daylight saving time, over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week of September 2-7 is as follows:

September 2. (Holiday).
September 3. "Selection and Care of Kitchen Equipment," by Dr. R. G. Leland.
September 4. "Medical News," by Dr. J. F. Hammond.
September 5. "Modern Conquests," by Dr. R. G. Leland.
September 6. "The Nursery School," by Miss Mildred Whitcomb.
September 7. "The Road to Beauty," by Miss Lois Stice.

Evening Health Hints from Hygeia, 8 o'Clock Chicago Daylight Saving Time

September 2. The Cold Cream Craze.
September 3. Health Rules for School Children.
September 4. Intelligence Test for Motorists.
September 5. Intelligence Test for Motorists.
September 6. Direct Contact Spreads Tuberculosis.
September 7. Porto Rico Sunlight Prevents Rickets.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARKANSAS

Society News.—The Pope County Medical Society and the Yell County Medical Society met jointly, July 11, at Chickalah. Drs. Thomas J. Pool, Ola, health officer of Yell County, spoke on cooperation between physicians and health officers; Alvie B. Tate, health officer of Pope County, on the importance of reporting contagious diseases; Roy Millard, Dardanelle, on how physicians and the laity can aid in health work; Robert L. Smith, Russellville, on the relation of the physician and public.——The Lawrence County Medical Society, Portia, was addressed, August 14, by Drs. Wright W. Hatcher and Cleo C. Ball, Ravenden, on typhoid fever. The *Arkansas Medical Journal* says that following the program "some of Portia's famous watermelons were served."

CALIFORNIA

Personal.—Dr. Robert S. Stone has been appointed assistant professor of roentgenology at the University of California Medical School; Dr. Henry H. Searls has been promoted to associate professor of surgery; Dr. Gordon E. Hein to associate professor of medicine, and Dr. Randolph L. McCalla to assistant professor of medicine.

Hamilton McClarty Buys Fraudulent Diploma by Mail.—The state board of medical examiners reports that Hamilton McClarty attempted to gain a license to practice in California as a physician by filing fraudulent credentials. He is said to have confessed to the purchase of a diploma from two French persons operating a concern at No. 7 Rus Anneessens, Brussels, Belgium, which is engaged in selling fraudulent diplomas by mail. McClarty made an affidavit to the effect that in 1927 he purchased through correspondence a diploma of a mythical "National University of Belgium" for $150. Ruben L. McMasters, a drug clerk at Modesto, Calif., it is reported, also purchased a diploma in the same manner. McClarty has pleaded guilty in superior court in San Francisco to violation of California's diploma mill statute and been placed on probation. An investigation of this case by Albert Carter, for the state board of medical examiners, showed that McClarty was born at Cushendall, Ireland, in 1893. His occupation given on his citizenship papers was that of conductor. He has an honorable discharge from the U. S. Army, with which he served in France in the late war as an interpreter at general headquarters. His discharge, however, covers two years of the time that he is alleged to have been attending the Kansas City College of Medicine and Surgery and also part of the time that he is said to have been employed by the Amazon Drug Company in San Francisco. Judging from his application to the state board of pharmacy for a license, and from his application for a physician's certificate, he was in San Francisco and Kansas City at the same time. In the latter affidavit, he claimed attendance at the Kansas City College of Medicine and Surgery from March, 1917, to May, 1921, and in the former affidavit that he was with the Amazon Drug Company in San Francisco from August 1 to Dec. 1, 1917. He claimed before the board that he entered the National University of Belgium in March, 1927, and was there until Dec. 12, 1927. The state board learned that McClarty registered as a voter in San Francisco on Oct. 8, 1927, giving his address as 793 Ingerson Avenue. The secretary of the board, Dr. Charles B. Pinkham, concluded that McClarty could not have been in Belgium and San Francisco at the same time. Dr. Pinkham also ascertained from the American Consul at Antwerp that there is no such institution as the National University of Belgium.

COLORADO

Personal.—Dr. Henry R. McGraw has been elected president of the state board of medical examiners, and Dr. William W. Williams, secretary-treasurer. The board's office is now at 224 State Capitol Building, Denver.

Report of Tuberculosis Foundation.—The Colorado Foundation for Research in Tuberculosis now has an endowment of $145,533. An endowment of $200,000 would provide sufficient income to enable the work of the foundation to go forward on its present scale. The laboratory quarters are inadequate and plans have been drawn for a $50,000 laboratory building. Two main lines of research are being followed, the first a series of studies on immunity, continuing the work that has been carried on by the research director of the fund, Dr. Gerald B. Webb, Colorado Springs, and his co-workers for twenty years, and the second, a study of the effects of light and radiation. The foundation was organized in May, 1924, as a nonprofit corporation with the hope of contributing to the prevention and cure of tuberculosis. Dr. Webb has general supervision, but the work is carried on by Drs. Charles H. Boisservain, Charles T. Ryder and William F. Drea. The secretary is Dr. Edward N. Chapman, 1520 North Nevada Avenue, Colorado Springs.

IOWA

Society News.—The state department of health has created the position of inspector and employed Herman B. Carlson, Des Moines; he will secure evidence on which prosecutions may be based for violations of the medical practice act.——The Medical Society of the Missouri Valley will meet at Iowa City, September 26-28. Representatives of various colleges will participate in the program. Physicians are cordially invited. ——The three hundred and forty-seventh medical regiment and many officers, members of the Iowa State Medical Society, were in training at Fort Snelling, July 5-19. The commander of the regiment, Col. Aaron C. Conaway, is councilor of the state medical society from the fifth district.——Dr. Louis J. Leech, West Branch, on his eighty-third birthday was guest of honor at a community dinner, August 3. Dr. Leech is still in practice.

Division of Preventable Diseases Established.—The state department of health announces that a division of preventable diseases has been established in accordance with the code of Iowa and that Dr. Howard A. Lanpher, formerly epidemiologist of the Connecticut State Department of Health, has been employed to act as director of the division. Among its functions are the making of investigations and surveys in the cause of epidemics and their control; investigation of sanitary conditions as they relate to epidemics or other outbreaks of disease; collection of nose and throat cultures; investigation of rabies in animals; collection of specimens of blood or other body fluids for examination; advice as to vaccination and inoculation; establishment of quarantine in the absence of the local health officer, and the giving of lectures on the prevention of disease. The office of the division will compile daily reports of communicable disease from local health officers; make maps and charts to show the incidence of disease, and prepare articles for the press. The services of the director of the division may be obtained on application through the local health officers by any community. There will be no charge. It is earnestly desired by the state department of health that health authorities will report all cases of communicable disease to the new division at once and in other ways cooperate in its work.

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MARYLAND

Society News.—Ten cases of undulant fever were reported to the state health department in the first six months of 1929, as compared with five cases reported in the same period last year.——The one hundred and fourth medical regiment, Maryland National Guard, left Baltimore, July 27, for two weeks' training in camp at Carlisle Barracks, Pa., in command of Major Dwight H. Mohr.——The Home for the Infirm, a unit of the Hebrew Home for the Aged and Infirm, Baltimore, was dedicated, July 21.

Dr. Krause Will Teach at Stanford.—Dr. Allen K. Krause, formerly associate professor of medicine and director of the Kenneth Dows Tuberculosis Research Laboratory at Johns Hopkins University, who has been made director of the Desert Sanatorium and Research Institute, Tucson, Ariz., has been appointed clinical professor of medicine at Stanford University. Dr. Krause will be located at Tucson, but he will be in San Francisco at times during the year to teach at Stanford (THE JOURNAL, May 25, 1929, p. 1769).

Dedication of Wilmer Ophthalmological Institute.—Under the auspices of Johns Hopkins University, the Johns Hopkins Hospital, and the William Holland Wilmer Foundation, Baltimore, exercises will be held October 15-16 to dedicate the Wilmer Ophthalmological Institute. The program includes addresses by Hofrat Ernst Fuchs of the University of Vienna on "The Development of Ophthalmology in Europe"; Sir John Herbert Parsons of the University of London, on "Color Vision and its Anomalies," and Dr. George E. de Schweinitz of the graduate school of Medicine of the University of Pennsylvania, "Some Contributions and Phases of American Ophthalmology."

Personal.—Dr. Leon J. Malock, who recently completed his internship at Mercy Hospital, Toledo, Ohio, has been appointed a member of the staff of the Laurel Sanatorium, Laurel.——Dr. William Sydney Thayer, recent President of the American Medical Association, was awarded the honorary degree of doctor of laws at the commencement of McGill University, Montreal, Canada.——Dr. Hugh H. Young, as chairman of the state aviation commission, will be abroad inspecting airdromes and factories in England, Italy, France, Holland, Germany and Switzerland until about the end of September. Dr. Young recently bought forty pieces of Americana relating to the early settlement of Maryland under the first and second lords of Baltimore which he will present to the state.

MASSACHUSETTS

Personal.—Dr. John Dixwell, Boston, has given a fund to the Colony Historical Society of New Haven, Conn., to insure the maintenance of a monument to one of his forefathers who took refuge there when sought as one of the judges who tried Charles I of England. The monument, now more than 100 years of age, stands in New Haven's famous Central Green.——Dr. Hans Zinsser, professor of bacteriology and immunology, Harvard University Medical School, Boston, gave the commencement address at the Graduate School of Brown University on "In Defense of Scholarship."——Dr. Harvey Cushing, Moseley professor of surgery, Harvard University Medical School, has been elected a foreign member of the Paris Academy of Medicine.

MICHIGAN

Grand Rapids Makes a Record.—With a population of 164,000, Grand Rapids was the largest city in the United States that had no deaths from diphtheria in 1928. According to the state department of health, which has completed a study of diphtheria in cities of more than 10,000 population, Grand Rapids has been working for five years to immunize its children by means of toxin-antitoxin. Traverse City and Marquette went through the year without a case of diphtheria. The diphtheria mortality rate for the state was 11.7 per hundred thousand of population. Michigan cities whose rate was lower than that were Adrian, Benton Harbor, Highland Park, Kalamazoo, Muskegon, Port Huron, Flint, Battle Creek and Saginaw; cities whose diphtheria death rate was higher were Pontiac, Hamtramck, River Rouge, Lansing, Wyandotte, Detroit, Owosso, Muskegon Heights and Iron Mountain, the last one having the highest rate among cities of this size in the state. Detroit, the fourth largest city in the United States, also had the fourth highest diphtheria mortality rate in Michigan (16 per hundred thousand of population). The list of the states with the highest diphtheria rate prepared by the health department for this study in order lists Michigan first.

MINNESOTA

List of Practitioners.—The state board of health has published the first edition of a list of the names and addresses of all practitioners of the healing art, including physicians, osteopaths and chiropractors, who are licensed to practice in Minnesota. Supplements will be issued quarterly to health officers, sheriffs and county attorneys as provided by law.

Society News.—The U. S. Army Medical Department will offer a course of instruction at the Mayo Clinic, Rochester, in October, which is designed for reserve officers who are on the staff of the foundation. It will occupy about six weeks and will be arranged to interfere as little as possible with routine clinic duties.——Dr. William J. Mayo's yacht, the *North Star*, was again tendered to the Wabasha County Medical Society for its annual meeting on the Mississippi River, July 11. The business session pertained to medical economics and public health education. At the scientific session, addresses were given by Drs. Jalmar H. Simons, Minneapolis, on "Careful Obstetrics"; Russell H. Frost, Wabasha, on "Incidence of Tuberculous Infection in School Children," and Philip F. Donohue, St. Paul, on "Diagnosis and Treatment of Renal and Ureteral Calculi." Dr. Dominick P. Dempsey, Kellogg, gave the retiring president's address. Dr. Frost was elected president for the ensuing year.

MISSOURI

Transfusion Donors.—The blood transfusion committee of the community council maintains at the Central Registry of Nurses, St. Louis, a list of transfusion donors amounting now to eighty-one. Since the committee undertook this work three years ago, donors have given blood for 275 transfusions, fifty of which have been given free. The regular fee to donors for each transfusion is $25.

Official Report of Death Rate.—The U. S. Department of Commerce announced that the death rate for Missouri for 1928 was 1,284.9 per hundred thousand of population, as compared with 1,161.1 in the year 1927. The increased rates were principally in diseases of the heart, nephritis, cerebral hemorrhage, cancer, diabetes and tuberculosis, but there were significant decreases in the rates from measles and acute anterior poliomyelitis. The estimated population of Missouri for 1928 was 3,523,000 and in 1927, 3,510,000.

Student Sues School for Misrepresentation.—Loy E. Ritts, Altoona, Pa., said to be a student in the Kansas City University of Physicians and Surgeons, has filed suit, alleging that the school published false and misleading statements in its pamphlets regarding its standing and equipment. Ritts alleges that through its president, A. L. McKenzie, the school claimed to meet the legal requirements of Missouri and that it was well equipped with laboratories, clinical facilities and able instructors. He was thus induced to come to the school, but now claims that he found it did not meet the legal requirements in Missouri and that graduates could not obtain a license to practice medicine there or in other states. He asks a judgment to reimburse him for expenses incurred in relying on the alleged misrepresentations in coming to Kansas City.

Horton is Subdued.—Dr. Ray B. Horton, Kansas City, whose license to practice medicine in Missouri was revoked for diploma mill activities, was arrested, August 3, on charges of extortion, following a complaint by Dr. Calvin A. Beard that for $1,000 Horton offered to keep his name from a list of graduates of the Kansas City College of Medicine and Surgery, which Horton said was to be published in a diploma mill news writeup. The county prosecutor sent four investigators to Horton's office. One remained on the street below the window, while Dr. Beard entered the office alone and handed Horton the marked money in an envelop. Two investigators then entered the office. Horton fought them off long enough to toss the envelop out the window, and it required the combined efforts of three investigators to subdue him. The investigator who remained on the street retrieved the marked money. A few days after this event the secretary of the Missouri State Board of Health notified the secretary of the Kansas State Board of Medical Registration and Examination not only that Dr. Horton's license had been revoked in Missouri in 1927 but that his license to practice in Kansas had been granted through reciprocity with Missouri. Thus the diploma mill scandal of several years ago has bloomed out again in Missouri, as well as in Illinois, and it seems probable that before the matter is cleared up, other states will be involved (THE JOURNAL, Oct. 20, 1928, p. 1200).

Unlicensed Practitioners in Kansas City.—At the request of the president of the Jackson County Medical Society, the

secretary of the state board of health made an investigation to determine whether the practitioners in Kansas City whose names were submitted to him were licensed to practice medicine in Missouri. In reply, the secretary, Dr. James Stewart, said that he had searched the files and found that the following are not registered by the state board of health. The board at a special meeting decided to make public these names. They are printed here as they appeared in the Kansas City *Post*. On checking these names against the records of medical graduates in the headquarters of the American Medical Association, some could not be found, and some differed as to spelling. There is a Walter E. Matherly who is a graduate of Kansas City College of Medicine and Surgery in 1924 and was licensed in Arkansas in 1925, but no one by the name of Water E. Mathery. Murrill W. Maglio has no official record of graduation in our files other than a report from the Eclectic License Board of Arkansas for May, 1926, which stated that he is a graduate of Kansas City College of Medicine and Surgery. There is a Wilhelm Rudolf Ebler who claims to be a graduate of the University of Vienna, Austria, in 1912, residing in Kansas City, but no Woolf R. Ibler. There is a James Arthur McLaughlin in the files, but no James Augustus McLaughlin.

James Augustus McLaughlin, 605 East Thirty-First Street.
R. B. Bishop, 507 Ridge Arcade.
Helen Grites, 205 Minor Building.
Frank E. Day, 4318 East Ninth Street.
Ernest W. Dunlop, 314 Wirthman Building.
Emory Fisher, 309 East Ninth Street.
W. R. Fricks, 205 Minor Building.
J. Lester Hall, 7516 Madison Street.
John W. Horn, 814 Chambers Building.
Sidney J. Johnson, 900 Benton Boulevard.
Y. O. Johnson, 300 Minor Building.
Ray B. Horton, 1116-1118 Grand Avenue.
Charles W. McPheeters, 1016 Chambers Building.
Herbert O. Peuce, Twenty-Seventh Street and Prospect Avenue.
Arthur L. Pickerell 6415 East Fifteenth Street.
Murrill W. Maglio, 4518 Holly Street.
Otto F. Reisman, 1017½ Grand Avenue.
Edward M. Perdue, Thirty-First and Main streets.
Fred Armbruster, 309 East Tenth Street.
M. R. McClure, 309 Eas. Tenth Street.
William A. Warren, 416 Gumbel Building.
C. M. Steward, 520 Commerce Building.
E. H. Zeilinger, 226 Hyde Park Building.
A. H. Miers, Twenty-Seventh and Prospect Avenue.
Archer Hatcher, 900 McGee Street.
Claude E. Hilton, 206 McMillen Building.
Woolf R. Ibler, 232 Brush Creek Boulevard.
William C. Martin, 218 Lee Building.
Water E. Mathery, 200 Lee Building.
Charles Albert Johnson, 4009 Olive Street.

Date R. Alexander, Samuel M. McCubbin, Russell B. Parrett, M. Frederick Kelley, Perry E. Williams, Knox R. Lancaster, all of Kansas City with no street address.

The following names could not be found in the A. M. A. files:

Claude E. Hilton.
Emory Fisher.
W. R. Fricks.
M. R. McClure.
John W. Horn.
J. Lester Hall.
Helen Grites.

NEW HAMPSHIRE

Accident Deaths Increase.—Reports from the U. S. Department of Commerce indicate that the death rate from accidents in New Hampshire increased from 62.9 in 1927 to 78.3 in 1928, the types of accidents showing the greatest increase being accidental drowning and accidental falls. The general death rate in New Hampshire for 1928 was 1,412.7 per hundred thousand as compared with 1,391 in the preceding year. The increased rate was due chiefly to heart disease, nephritis, cancer and tuberculosis; there were increases in the rate also for diseases of early infancy, appendicitis and typhoid. The rates decreased in 1928 over 1927 for cerebral hemorrhage, diabetes mellitus, pneumonia, anterior poliomyelitis and meningitis. The estimated population of the state for 1928 was 456,000.

NEW YORK

Personal.—Dr. Menzo W. Herriman, Long Island City, has given $8,000 to Syracuse University College of Medicine to establish a scholarship, the income of which will be awarded to the senior student who is most deserving of aid financially.——Dr. Clinton P. McCord, after sixteen years' service as director of health education in the public schools of Albany, has resigned and is studying mental diseases in Vienna. Later he will engage in practice in Albany.——Dr. James H. Flynn has been appointed health commissioner of Troy to succeed the late Dr. William J. Fleming.

New York City

Cornell Medical Center to Begin Construction.—The second great medical center to be erected in New York filed its plans with the bureau of buildings, August 15, and construction will begin immediately. This, the New York Hospital-Cornell Medical College Center, will comprise thirteen connected buildings, commanded by a twenty-four story structure between Sixty-Eighth and Seventieth streets on the East River near the Rockefeller Institute for Medical Research. The joint administrative board in charge of the undertaking consists of J. P. Morgan, Edward W. Sheldon, William Woodward, Frank L. Polk, Dr. Livingston Farrand, Dr. Walter L. Niles, and J. Du Pratt White. The medical center has purchased from the city for $250,000 the bed of East Sixty-Ninth Street from New York Avenue west to Exterior Street, which will be closed and utilized as part of the site.

Commissioner Confers with Medical Societies.—Dr. Shirley W. Wynne, commissioner of health, held a conference, July 31, with the presidents of the five county medical societies to lay before them the plan for the physical examination of the 50,000 children entering school for the first time in September. The commissioner plans to send to each parent who registers a child a letter urging that the child be taken to a family physician for examination before going to school; if the parents are too poor to pay for the service, the health department physicians will make the examinations in the schools. A special effort will be made to insure that these children are immunized against diphtheria. Examinations of school children conducted last February showed that 38 per cent of them had some physical defect, those most frequently found being defective teeth, diseased tonsils and defective vision. Fourteen per cent of the defective children were undernourished; 13 per cent had defective nasal breathing; 1 per cent had defective hearing, orthopedic or nervous defects, and more than 1 per cent had some form of heart disease. Dr. Wynne said to the representatives of the county medical societies that this was a departure in promoting the health of school children, but that he was opposed to the health department spending city funds for work which the people were willing to have done by their family physician. A number of other persons interested in health work in addition to the presidents were invited to the conference.

OKLAHOMA

Society News.—The Southern Oklahoma Medical Association was addressed at Medicine Park, June 27, by Dr. Elmer E. Darnell, Clinton, on "The Social Aspect of Tuberculosis"; Dr. Walter H. Livermore, Chickasha, "Toxic Goiter," and Dr. Charles P. Bondurant, Oklahoma City, "Skin Diseases Commonly Met by the General Practitioner."——The Stephens County Medical Society was addressed at Marlow, June 25, by Dr. John A. Hatchett on "Toxemias of Pregnancy," and Dr. Carroll M. Pounders, Oklahoma City, on "Summer Diarrhea in Children."——Dr. Harry H. Cloudman has been made full-time health officer of the Oklahoma City schools.

PENNSYLVANIA

Personal.—Dr. Thomas G. Ashton, Wynnewood, suffered the loss by fire, July 6, of his main stables and a number of horses valued at about $100,000.——The guest of honor at the July 30 meeting at Lamartine of the Clarion County Medical Society was Dr. David L. McAninch, whose fiftieth anniversary in practice was celebrated on this occasion.

Typhoid Closes Girls' and Boys' Camps.—Following the illness of a number of the children, due, it is reported, to typhoid contracted through improperly pasteurized milk, Camp Tabor for girls and Camp Tioga for boys, near Scranton, were closed about August 17. The girls' camp was patronized largely by families from New York. Parents on learning of the epidemic rushed to the camp, and some of the girls who were acutely ill were taken home.

State Medical Meeting at Erie.—The seventy-ninth annual meeting of the Medical Society of the State of Pennsylvania will be held in the Masonic Temple at Erie, September 30-October 3, under the presidency of Dr. Thomas G. Simonton, Pittsburgh. The guests and invited speakers on the program will be Drs. Dean Lewis, Baltimore, on "Present Status of Surgical Lesions of the Stomach"; Russell L. Cecil, New York, "Recent Advances in Diagnosis and Treatment of Pneumonia"; Leon H. Collins, Jr., Philadelphia, "Therapeutic Use of Tank Oxygen"; Francis G. Blake, New Haven, Conn., "Host Factors in Infection"; William E. Lower, Cleveland, "Problems in

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Treatment of Prostatic Obstruction"; Edward L. Keyes, New York, "Prospects of the Prostatic"; Ethan F. Butler, Elmira, N. Y., "Dysphagia Due to Hyoid Spurs"; Arthur M. Dannenberg, Philadelphia, "The Thymic Syndrome"; Edmund R. McCluskey, Pittsburgh, "Transfusion as a Remedial Measure," and Joseph Stokes, Jr., Germantown, "Clinical Evidences of Encephalitis in the Acute Infections of Childhood." Many other Pennsylvania physicians will read papers. The annual golf tournament will be Monday, at the Kahkwa Club. Entertainment will comprise a yacht party on Presque Isle Bay, a tea at the Erie Yacht Club, the president's reception and ball, Wednesday evening, theater parties and an old-fashioned fish fry at Rainbow Gardens. Every important highway leads to Erie. The trip is through wooded hills, fertile valleys and along beautiful streams whether one goes by train or by automobile. The woman's auxiliary will hold its fifth annual session simultaneously. The Erie County Medical Society, the host, cordially invites all physicians and their families to be its guests.

Philadelphia

Zeppelin Brought Cultures of Cancer Cells.—The Kaiser Wilhelm Biological Institute of Berlin sent cultures of a special rat sarcoma to the United States on the Graf Zeppelin in order to insure their getting across alive. The cultures were consigned to the director of the laboratory of the University of Pennsylvania Graduate School of Medicine, Dr. E. Ellice McDonald. When established in their new environment, these cultures are expected to be valuable in the further study of mitosis.

Society News.—About 100 physicians attended a tri-county medical society meeting at Jeanes cancer and diagnostic hospital, Fox Chase, August 20. The new hospital has been endowed by the will of Miss Anna T. Jeanes with $2,650,000, in addition to the $1,000,000 spent for the plant and equipment. Following a trip through the hospital conducted by Dr. Roscoe W. Teahan, medical director, and others on the staff, a motion picture illustrating the effect on cancer cells of radium was exhibited. The guests included the officers of the three county medical societies (Bucks, Chester, Montgomery), and the president-elect of the Pennsylvania State Medical Society.—— The University Hospital of the University of Pennsylvania was bequeathed $10,000 in the will of Mrs. Eva Ramsay Hunt, who died July 8.

RHODE ISLAND

Personal.—The honorary degree of doctor of science was awarded to Dr. Arthur H. Ruggles, superintendent of the Butler Hospital, Providence, at the annual commencement of Brown University.

State Medical Election.—At the annual meeting of the Rhode Island Medical Society, June 6, Providence, Dr. Frank T. Fulton, Providence, was made president; Dr. Julian A. Chase, Pawtucket, president-elect, and Dr. James W. Leech, Providence, secretary. The next annual session will be June 5, 1930.

Award of Fiske Fund Prize.—The trustees of the Fiske Fund at the June meeting voted to award the $200 prize for 1928 to Dr. Cyril B. Courville, Loma Linda, Calif., for his essay on "Intracranial Tumors—Their Pathology, Symptomatology, Diagnosis and Prognosis." Three essays were submitted in the competition. The trustees voted to offer a like premium for the 1929-1930 essay on the subject "Lowered Basal Metabolism—Its Causes and Clinical Significance." The secretary of the fund is Dr. Wilfred Pickles, Providence, and the trustees, Drs. Arthur H. Harrington, Frank T. Fulton and Julian A. Chase.

SOUTH CAROLINA

Society News.—The Ridge County Medical Society was addressed, June 17, by Dr. Clough H. Blake, Greenwood, on cerebral injuries during labor.——The York County Medical Society met at Winthrop College, Rock Hill, June 12. Drs. Hugh P. Smith, Greenville, spoke on diagnosis of gallbladder disease, and James W. Jervey, Greenville, on "Enlarged Outlook for Organized Medicine."

Official Report of Death Rate.—The U. S. Department of Commerce announces that the death rate of South Carolina for 1928 was 1,310.5 per hundred thousand of population, as compared with 1,173.3 in 1927. The rates were increased over those of the preceding year for heart disease, nephritis, cerebral hemorrhage, diabetes, cancer, influenza, pellagra, malaria and diphtheria. The tuberculosis rate decreased, as did the rates from whooping cough, typhoid, meningitis and poliomyelitis. The estimated population of the state, July 1, 1928, was 1,864,000.

Much More Pellagra.—Interest in pellagra throughout the state is evident as the result of a campaign by the state board of health. Community meetings are being held to discuss pellagra with the people. Dr. James A. Hayne, the secretary, reports that there was a large increase in the number of cases of pellagra in the year ending June 30, 1929, but the mortality rate was considerably reduced. The number of cases for 1929 and 1928, respectively, were 4,154 and 2,902, and the number of deaths from pellagra, 422 and 326. He believes that the lesser mortality rate has been brought about through informing the public how to prevent the disease, together with the fact that "tons of brewers' yeast" have been distributed.

WASHINGTON

Society News.—Dr. Carl J. Johannesson, secretary, Walla Walla Valley Medical Society, and Dr. John C. Lyman, Walla Walla, have gone to Honolulu to attend the Pan Pacific Surgical Conference, August 14-24, where Dr. Johannesson spoke on cholecystography, and Dr. Lyman on surgery of the biliary ducts.

Personal.—Dr. John N. Alley has been appointed medical officer in charge of the tuberculosis Indian hospital, Tacoma. ——Dr. Connor O. Reed, Bellingham, was elected president of the State Association of Reserve Officers at the annual meeting in Seattle, June 20.——Dr. John F. Christensen, Kelso, has been made health officer of Cowlitz County, succeeding Dr. Luman S. Roach, Kalama.

GENERAL

American Board of Otolaryngology.—The next examination of this board will be in Philadelphia, October 21. Prospective candidates should address the secretary, Dr. William P. Wherry, 1500 Medical Arts Building, Omaha. At the July 8 examination in Portland, Ore., 11 per cent failed among thirty-seven applicants.

Physiologists Commemorate William Beaumont.—It has been the custom of each international physiological congress to republish the work of one of the early physiologists of the country in which the congress is held. For the eighteenth international physiological congress in Cambridge in Massachusetts, August 17, the work of Dr. William Beaumont, the U. S. Army surgeon who did pioneer research on gastric digestion, was republished and presented to every member of the congress. It will be recalled that Beaumont's work was done on Alexis St. Martin, a French Canadian who had a permanent gastric fistula following a gunshot wound. Beaumont's observations on gastric secretion and digestion between 1825 and 1831 were the first of their kind.

National Pharmacy Week.—The fifth annual observance of National Pharmacy Week will take place in all English speaking countries, October 13-19. Among the organizations cooperating are the American Pharmaceutical Association, the Federal Wholesale Druggists Association, the National Wholesale Druggists Association, members of the state board of pharmacy and deans of colleges of pharmacy. Radio addresses, full page spreads in twenty-eight metropolitan newspapers, news stories, editorials and window displays by druggists will bring a message to the public. Every pharmacist in the country is requested to cooperate. Requests for information should be sent to the chairman of National Pharmacy Week, 80 Beekman Street, New York.

Care in Making Physical Examinations. — Preliminary medical examinations are required of applicants for positions under the U. S. Civil Service Commission. Applicants who are accepted for examination later are examined by government medical officers who frequently find physical disqualifications which from the nature of the cases must have existed when the preliminary medical certificate was executed by the practicing physician, although no mention of the defects is found. This situation presents a problem to the government, for in many cases the appointment must be cancelled with resulting loss to the disappointed applicant. The commission requests all private practitioners who make the preliminary examinations to exercise care in filling out the certificates. In so doing they will render service to the government and to the applicant himself.

Radium Paint for Watch Dials. — The commissioner of labor statistics of the U. S. Department of Labor, Mr. Ethelbert Stewart, has prepared a bulletin on radium poisoning, giving the result of inspections of thirty-one establishments throughout the country in which workers are said to be subjected to exposure to radioactive substances. The inspections brought out that twenty-three fatalities and nineteen patients still living appear to be the result of radium poisoning. Pre-

cautions adopted in recent years since the danger became known, the employers say, have eliminated the hazard in the dial painting industry. The most important of these measures forbids the operators from pointing the brushes in their mouth. Other implements, such as glass pens, hardwood sticks or metal points, have been adopted for applying the composition in some factories, but brushes are still used in several for retouching or correcting the work. The U. S. Navy Department is conducting its own investigation where radium is used in navy plants and, pending results, has suspended the use of luminous paints in two places.

Movies for Lepers at Culion.—Under the auspices of the Leonard Wood Memorial for the Eradication of Leprosy, seven film producing companies have donated 778,000 feet of films to the Culion Leper Colony in the Philippine Islands to be shipped on the U. S. Army transport sailing from New York, August 20. The effect of this form of entertainment on these isolated patients is told by the wife of the medical director of the leper colony in a letter to the Wood Memorial. Movie night at Culion, she said, is a gala night, the lepers coming in fiesta mood, dressed in their gayest and waiting long before sunset, eager and excited until time for the show. Some reels are run over and over again for them far into the night, and at times the sunrise is the only thing that will put an end to the show. Mrs. Wade says that at intervals all through the night one can hear the waves of mirth and applause that sweep up from the plaza. The Leonard Wood Memorial for the Eradication of Leprosy now has $1,450,000 contributed toward its $2,000,000 fund. A large leprosarium at Cebu and laboratories are already under construction. The purpose is to provide facilities for research in the hope that leprosy may be driven from the islands.

Report of Milbank Fund.—In its twenty-four years of activity the Milbank Memorial Fund, 49 Wall Street, New York, has made grants totaling $8,758,696.82, considerably more than half of which has been devoted to public or community health. It has cooperated with enterprises other than the New York health demonstrations, some in remote parts of the world. In the annual report, the secretary states that last year the grants amounted to $849,850, and of this the largest single contribution was for the health demonstrations. The work of the Milbank Memorial Fund has been chiefly in cooperation with such established associations as the New York Association for Improving the Condition of the Poor, the State Charities Aid Association, the National Committee for Mental Hygiene, the National Board of Medical Examiners, the American Public Health Association and the Judson Health Center. The fund continued to cooperate in 1928 with the Committee on the Cost of Medical Care and other special study projects. It pledged $100,000 for endowment which assures the Saranac Laboratory of the Edward L. Trudeau Foundation continued support from the fund. It has expended more than $1,000,000 in promoting the health and welfare of populations in New York City. It is now cooperating in the Bellevue-Yorkville Health Demonstration and up-state with the Cattaraugus County health unit and the health unit in Syracuse. These demonstrations, says the director of the division of publication, are in reality public health laboratories where methods and practices are being evolved for the benefit of the public generally.

HAWAII

Society News.—Dr. Forrest J. Pinkerton, Honolulu, was made president and Dr. Archibald N. Sinclair, Honolulu, secretary, at the annual meeting of the Hawaii Territorial Medical Association, at Honolulu.

Official Mortality Rate.—The U. S. Department of Commerce announces that the death rate for Hawaii in 1928 was 1,322.9 per hundred thousand of population, as compared with 1,324.8 in the previous year. Significant among the decreases in rates were those from pneumonia, measles, bronchitis, whooping cough and meningitis (nonepidemic). There were increases in the rates from heart disease, cerebral hemorrhage, cancer, tuberculosis and nephritis. The estimated population of Hawaii in 1928 was 311,900.

FOREIGN

Graduate Course in Psychiatry.—Under the auspices of the American Medical Association of Vienna, the special class for graduate study in neurology and psychiatry, held in English at Professor Wagner von Jauregg's Neuropsychiatric Clinic, will be repeated January 2-February 15. Professor Wagner von Jauregg and his successor as chief of the clinic, Professor Pötzl, Professor Marburg and others will participate. The fee is $150. Information can be obtained from Docent Dr. E. Spiegel, Vienna, I., Falkestrasse 3.

Health Organization of League of Nations.—The health organization of the League of Nations has three parts: advisory council, health committee and permanent secretariat. The advisory council, comprising delegates from the public health services of about forty-five governments, serves as adviser for the health organization of the League of Nations, but it is a separate and independent international organization which is constituted by the standing committee of the Office International d'Hygiene Publique, which has functioned since 1908. It has a small permanent secretarial staff at the headquarters in Paris. It consists of a standing committee which meets twice a year comprising representatives of the public health services of all governments which ratified the Rome arrangement and its members sit as government representatives. The Health Section of the League of Nations is made up of some fifteen physicians of various nationalities, and the necessary clerical assistance. Most of them are to be found at Geneva, Switzerland, but some are at the other important seat of the league at Singapore. The Health Committee of the League of Nations is a body of experts in hygiene set up to advise the assembly of the council of the league on matters relating to international health. There are twenty-four members of the committee (three from the United States), which meets twice a year at Geneva. These committee members are not delegates from their governments, but act simply as experts in an individual capacity. The health organization of the league is further described by one of the American members, Dr. Frank G. Boudreau, in the *American Journal of Public Health.*

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Government Services

Army Personals

Capt. David L. Robeson will proceed to Fort Monroe, Virginia, about September 1.——Major Herbert H. Smith has been relieved from duty at Fort Clark, Texas, and after temporary duty at Carlisle Barracks, Pa., and Omaha, will proceed to Kansas City, Mo., for duty as instructor with the Missouri National Guard.——Lieut. Albert F. Dowler, having been found incapacitated for active service on account of disability incident thereto, has been retired from the army.——Major Arthur P. Hitchens has been relieved from duty at the Army Medical School, Washington, and ordered to Fort Sheridan, Illinois, for duty with the sixth corps area laboratory.——Col. Edwin P. Wolfe, having been found incapacitated by a board on account of disability incident to the service, has been retired. ——Col. Clarence J. Manly, who will be relieved from duty at headquarters, sixth corps area, Chicago, about October 1, has been directed to proceed to Fort Benning, Georgia.——Major Condon C. McCornack has been designated commandant of the medical field service school at Carlisle Barracks.——Capt. George P. McNeill, Jr., has been ordered to sail from San Francisco about December 6 for the Philippine Islands for duty. ——Capt. Rees S. Lloyd, having been examined for promotion and found physically disqualified for the duties of a major by reason of disability incident to the service, has been retired as major under provision of an act of Congress approved April 23, 1908.——Major James Vincent Falisi has been relieved from duty at the fourth corps area laboratory and assigned to duty at Fort McPherson, Georgia.——Capt. John D. R. Woodworth has been relieved from Vancouver Barracks and assigned to duty at Fort Banks, Massachusetts.

U. S. Public Health Service

Asst. Surgs. Paul A. Neal, Jr., Harold E. Foster and Richard B. Holt have been relieved from duty at Ellis Island, N. Y., and assigned to Belfast, Ireland, Glasgow, Scotland, and Southampton, England, respectively. Surg. Hugh De Valin has been directed to assume charge of the venereal disease clinic at Hot Springs National Park, Ark., conducted by the public health service in cooperation with the National Park Service. Surg. Louis L. Williams, Jr., was directed to proceed from New York via Cherbourg and Marseilles, France, to Bombay and other points of India to represent the public health service at a malaria conference beginning August 23. Asst. Surg. Langdon R. White has been relieved from duty at Bergen, Norway, and assigned to duty at Oslo, Norway. Surg. Lynne A. Fullerton was relieved from duty at Oslo about August 18 and assigned to Ellis Island.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Aug. 3, 1929.

The London School of Hygiene

The Prince of Wales opened the new building of the London School of Hygiene and Tropical Medicine, which has been formed by the union of the School of Hygiene by the government, and the old London School of Tropical Medicine, founded in 1899 at the instance of Sir Patrick Manson and administered for many years under the care of the Seamen's Hospital Society. The new school, for the site, building and equipment of which the Rockefeller Foundation made a generous grant, was incorporated in 1924. It has been described as an institute of preventive medicine capitalized by American benefaction, maintained by parliamentary grant and student fees, and open to all nations. It is devoted to the dual purpose of postgraduate teaching and research work. The Prince of Wales said that the establishment and endowment of this center of teaching in preventive medicine is a signal example of the bond between the two great English-speaking races of the world. Instruction in the class rooms and laboratories of this building will be conveyed by physicians of every nationality to the far corners of the earth. The building is situated in the west central district of London, near University College. It is of the severely modern type, varying from five to six stories in height, and occupying a site of 300 by 180 feet with frontages to Gower Street, Keppel Street and Malet Street. The block plan is H-shaped, permitting of north and south courts and dividing the structure into two main divisions. One of the divisions comprises all the rooms required for public use, such as museum, library and lecture theaters, and the other the accommodation for research and teaching departments, including a series of laboratories, some able to take eighty students, workshops and animal quarters. The Keppel Street façade, which overlooks a part of the British Museum, forms the front of the institution, and across it, high up, runs a frieze bearing the names of early pioneers in hygiene and tropical medicine. The balconies of the first floor windows are decorated by gilded bronze insects, typifying the carriers of tropical diseases, and over the main entrance has been carved an adaptation, from the school seal, representing a Greek coin engraved with the figures of Phoebus and Diana bringing light and health to the distressed inhabitants of a malaria-ridden town in Sicily. Dr. Andrew Balfour said that the Rockefeller trustees paid a tribute to the proud position held by Great Britain as the country which had led the way in placing public health administration and legislation on a sound basis. It was hoped that the school, while serving national and imperial needs, would also become a center of world-wide influence in training public health students and research workers, and in furthering research into public health problems.

Food Investigation

In accordance with a decision at the imperial agricultural research conference in October, 1927, the department of scientific and industrial research has issued the first "Index to the Literature of Food Investigation." It is proposed to issue such lists of food preservation and transport biannually. A preface to the first index gives a brief historical review. Food preservation is older than man himself. The bee harvests and stores honey, and the agricultural ant of Texas cultivates grain, harvests the seeds and stores them. Even as to the most natural preservative, cold, the historical beginnings are indeterminate. Ice from the hills has been stored in the plains of Italy for the preservation of food for no one knows how long. The chief feature of modern practice is the use of artificial cold. It is not clear who originally constructed an inverted heat engine so as to use it as a heat pump. Possibly it was Dr. William Cullen, who in 1755 devised a machine in which water was the refrigerator and the fall of temperature was obtained by boiling in a vacuum. The earliest compression machine of the modern type was constructed by John Hague from the designs of Jacob Perkins, the refrigerant being ether. The pioneer, from the thermodynamic point of view, was Prof. Carl Linde of Munich, who built an ammonia-compression machine in 1873. The first carbonic acid-compression machine was also made from Linde's designs of 1880. Before this, however, in 1879, a compressed air machine, designed by J. J. Coleman of Glasgow, had been fitted on board the Anchor liner *Circassia*, which successfully brought a cargo of chilled beef from America. This is believed to be the first example of the refrigerator in the transportation of food. A cargo of frozen mutton was brought in good condition from Australia in 1879 also by the use of an air compression machine. The theory of the flow of heat to pipes seems to have suffered curious neglect at the hands of cold storage engineers, in spite of the fact that it forms the basis of their practice. The design of grids, for example, is still entirely empiric. Work now in progress at the National Physical Laboratory will, it is hoped, fill this remarkable gap. While on the engineering side the science of cold storage has been developed fully, the biologic side is in its infancy. The biologic properties of the material to be stored, whether flesh, fish or fruit, the effect on these properties of temperature, of humidity and of the composition of the air in the store, decide the physical conditions which the engineer has to realize. Cold storage science will be complete only when the biologist is in a position to define with precision the conditions for the engineer. In the storage of fruit there exist critical limits of temperature, above the freezing point of the tissues, below which fruit cannot be stored for any considerable period without depreciation in flavor and condition. Many varieties of English apples, for example, are not able to ripen normally at temperatures below 35 F.

The Annual Meeting of the British Medical Association

The ninety-seventh annual meeting of the British Medical Association was held at Manchester. The most important business of the representative body was hospital policy. At the representative meeting in 1927, the council was instructed to consider the formation of "a middle class hospital policy." The response was forthcoming only in time for the present year's assembly. It is that the best method of dealing with this matter is not by the issue of any separate policy, but by bringing the existing hospital policy into line with present day requirements and dealing with the new conditions arising as a consequence of the demand which exists for hospital provision for the middle classes. Accordingly the council brought forward a motion to the effect that it is not desirable to formulate a middle class hospital policy, but that the position might be met by amending the voluntary hospital policy for the United Kingdom. The council had found it difficult to define "middle class," but it adhered to a definite scale of income above which people could not be treated in hospitals otherwise than as private patients. That lower limit accordingly remained as fixed in the scale already included in the existing hospital policy, $1,500 a year. It had been equally difficult to divide off the upper classes by an upper income limit, and the committee had given up the attempt and adhered to the accepted principle of charging persons of means according to an arrangement fixed by the physician in agreement with the patient.

An attempt was made for the further classification of the patients, who have hitherto been placed in three groups: (1) those unable to contribute in any way; (2) "private patients" who pay for special accommodation and who arrange for treatment fees independently of the hospital, and (3) an intermediate group of "tariff patients" who directly or indirectly pay part

or all the tariff charges of the hospital. On behalf of the council it was proposed that a distinct group of "aided patients" should be recognized. It was hoped that there would be a steady growth of the class which did not want charity and which paid the full cost of its keep in the hospital, including fees for medical attendance. This class, to which it was suggested that the term "tariff patients" should henceforth be confined, included those for whom payment was made by public authorities, approved societies, employers of labor, insurance companies, or under contributory schemes. Meanwhile, however, a large body of patients were able to pay only part of the cost of maintenance and treatment, and the council held that these should be placed in a definite category. Fees for medical attendance on such patients would be paid to the visiting staff according to what proportion of the full tariff was received by the hospital from the patient or on his behalf. The proposal to recognize an "aided" class was vigorously opposed. It was argued that about 80 per cent of the industrial population could pay 4 cents or 6 cents a week to contributory schemes and thus pay the full tariff scale. But such people would never do so if they were given a chance of paying a little as and when they thought fit. The result was that the new policy was sent back to the council for further consideration.

THE LOSS ON MOTOR ACCIDENTS

The grievance of a physician who lives near one of the great roads and who works in attending motor accidents for which he has been unpaid gave rise to a resolution from the council. The representative body is of the opinion that failing the creation of a central fund by some extra tax on motorists or some system of compulsory insurance, including a priority for charges for medical attendance on any claims made, either of which methods would require legislation, probably highly contentious, no satisfactory solution can be devised for the difficulty experienced by physicians in recovering the amount of their charges. Further, the representative body is of the opinion that no greater case can be made out for dealing specially with the nonpayment of fees incurred by persons involved in road accidents than for those incurred in the treatment of the victims of any other form of accident. This resolution was opposed on the ground that it was only shelving the matter and referred back to the council for further consideration.

PROTECTION FOR THE CERTIFICATION OF INSANITY

The notorious danger of action for damages against a physician who certifies a patient as insane led to a motion for protection in the form "that the judicial authority when it intervenes shall accept responsibility for the detention of persons of unsound mind." It was pointed out that the report of the committee this year marked the funeral of all efforts to obtain freedom for the physician from the menace of legal prosecution in connection with mental cases. The result of everything the committee had done, and it had done its best, was that physicians stood exactly where they did ten years ago. No progress had been made in the direction of freeing them from the risk of prosecution once they signed their names to a lunacy certificate.

THE SMALLPOX PERIL: DEFECTIVE LYMPH FOR VACCINATION

The inefficiency of vaccination and the spread of smallpox were discussed. The difficulty of insuring adequate vaccination and the inadequacy of the present protection were attributed to the uncertainty of certain preparations of vaccine lymph. This objection did not apply to government lymph, which, however, was not available for other than public vaccinators. A seventh death from postvaccinal encephalitis had just been reported. Lymph obtainable by ordinary physicians was sometimes ineffective, sometimes too drastic, making the patient seriously ill, but the government supplies were more constant and certain in their action. It was urged that every physician should be made a public vaccinator. Then physicians must realize that they would have to be willing to be supervised as to their vaccination methods, instruments and records, for it was indispensable that the government should be able to trace the source of the lymph whenever anything went wrong. The matter was referred to the council for consideration.

THE DANGERS OF PSYCHOANALYSIS

The long report of the special committee of the association, which has been studying the subject for the past two and a half years—twenty-two sittings have been held and twenty leading members have been engaged in them—was accepted. An amendment was moved regretting that more emphasis has not been laid on the very real and serious dangers, especially to children and adolescents, of any system of mental therapy that postulates a sexual basis as the sole or as the preponderating cause of nearly all neuroses and pathologic mental conditions. It was asserted that if Freud had asked any Roman Catholic priest he would have learned that at any time within the last thousand years something like 90 per cent of all the disclosures in the confessional had to do with sexual subjects. To bring up this obsession with sex, with the claim of its being a new discovery, was therefore wrong. The only new thing was making it the basis of a method of treatment similarly with the "unconscious mind." In opposition to the amendment it was said the appeal was not being made to the meeting as members of a scientific profession, but to the hostile emotions and prejudice always aroused by antagonism to conventional habits of thought. Had the profession ever done any good in its heresy hunts? In reply it was alleged that psychoanalysts were men who day after day, month after month, year after year, were soaked in nothing but sex, and it must be obvious that there were grave dangers in any system so based on sex. The amendment was rejected.

FOOD POISONING: UNITED STATES FACTORY CONDITIONS

In the section of pathology and bacteriology, Prof. J. Cruickshank, speaking on food poisoning, objected to outbreaks being called ptomaine poisoning when the conditions really were those of severe gastro-enteritis and there was no more poisoning than in typhoid. Canned meats provided a considerable percentage of infected foods—a somewhat surprising fact, in view of the high temperatures involved in the process of canning food. Dr. W. G. Savage, the well known authority on food poisoning, said that a great deal of the canned meat came from hot countries in South America and from some of the United States. He had visited the canning factories in the United States, and had no difficulty in imagining that a few salmonella bacilli gained access to the meat before it was canned. Work was not done in the factories on Sundays. The stock of prepared food was kept over the week-end, and while the subsequent cooking killed these organisms, it did not destroy the toxin created by their rapid multiplication. Such a source of infection would account for the fact that in a batch of 30,000 tins produced from the factory at one time, all but three or four were perfectly sound. He did not agree that milk was the source of outbreaks of poisoning that were either widespread or severe. They were of low toxicity, and bad milk was rather the source of dysentery. The mortality from poisoned brawn or potted meat was fifteen times greater than that from infected milk. Dr. W. M. Scott brought out a number of facts through which eggs were shown to be the source of attacks of food poisoning. The egg infected from its very beginning was a favorable medium for the multiplication of bacilli, and as it was so often an unshared dish, it accounted for many solitary cases of poisoning. The circumstantial evidence against the duck's egg in a number of recent outbreaks was almost irresistible, and a Paris investigator had written that ducks consorted in ponds and ditches and the process of infection was clear. In the forms of trifle, custard and whipped cream, the domestic egg was now strongly suspected as the active constituent in many food poisoning outbreaks.

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CATARACT AND FOCAL SEPSIS

In the section of ophthalmology, Mr. A. F. MacCallan said that British ophthalmology was leading the rest of the world in the investigation and treatment of certain eye diseases. He used these words about cataract, limiting their application, however, to the acquired variety as distinct from the congenital. "The frequency of cataract," he said, "is not fully appreciated. In the majority of cases I have examined or treated in the last few years there has been a definite focus of sepsis, more often situated in the mouth than elsewhere. I believe that the most important cause of cataract formation is the presence of long continued local sepsis, generally dental. Therefore it is of the greatest importance to recognize in our patients as early as possible the slightest opacity in the peripheral cortex of the lens, to deduce from it the probable presence of a septic focus, to localize the focus, and to put the patient in the way of getting the focus eliminated. If this was generally carried out very few cataracts would be available for operation in another ten or twenty years. However, as long as the ordinary well-to-do person insists on retaining septic teeth in his head, dentists will be found to patch them up and crown them, and we operating ophthalmic surgeons will still have a future before us."

PARIS

(From Our Regular Correspondent)

July 24, 1929.

Vital Statistics for 1928

The minister of hygiene has just published the vital statistics for France for the year 1928. The excess of births over deaths was 70,205, being 7,333 for the first quarter, 22,001 for the second, 28,028 for the third, and 12,443 for the fourth. The improvement over the previous year, in which an excess of births over deaths of 65,042 was recorded, was slight. The improvement was due to a small increase of the births and a slight diminution of deaths. The adjoining table gives a comparison of the results of 1928 with those of the previous years back to 1920 and also of 1913, the last normal year before the war. The population of each year is evaluated as of June 30, account being taken of the excess of births over deaths and the excess of immigration.

Vital Statistics

Years	Population of France	Number of		
		Marriages	Living Births	Deaths
1928.....	41,020,000	339,014	745,315	675,110
1927.....	40,920,000	337,864	741,708	676,666
1926.....	40,850,000	345,415	767,475	712,751
1925.....	40,610,000	352,830	770,060	707,816
1924.....	40,310,000	355,401	753,519	678,942
1923.....	39,880,000	355,066	761,258	665,696
1922.....	39,420,000	384,585	759,702	687,651
1921.....	39,240,000	455,343	811,776	693,125
1920.....	39,000,000	622,724	833,518	671,057
1913.....	41,685,000	312,036	790,355	731,441

As compared with 1927, one notes, in 1928, an increase of 1,150 marriages, an augmentation of 3,607 births, and a decline of 1,556 deaths. The increase of births applies only to the first quarter (7,654 births more than in 1927). The improvement in the mortality applies likewise to the first three months (187,000 deaths, in place of 222,000 in 1927); but this favorable result was almost counterbalanced by the increase in deaths during the three remaining quarters, and, particularly, the increase of 19,351 for the third quarter of 1928, due to the great heat, which especially affected children of tender age. The proportion of living births per annum for each 10,000 inhabitants rose from 181 in 1927 to 182 in 1928. The proportion of the deceased remained stationary: 165 per 10,000 inhabitants. In 1928, one notes an excess of 70,205 births over deaths, or 17 per 10,000 inhabitants, in place of 65,042 (16 per 10,000) in 1927 and 54,724 (13 per 10,000) in 1926. The excess for 1928 is the highest since 1924, which shows an excess of 74,577 for the year. The total mortality for France would have decreased still more from 1927 to 1928 if the number of children dying before reaching 1 year of age had not increased by 6,283, from 61,817 to 68,100. This increase in deaths occurred during the last nine months of the year, principally during the third quarter. During this quarter, there were, in 1928, 7,288 more deaths among children under 1 year of age than in 1927, or an increase of 51 per cent. The differences between the temperatures for these two summers explain this marked variation. The summer of 1928 was long and hot, while the summer of 1927 was short and cool. In spite of the marked increase in infant mortality noted in many sections, the number of deaths among children under 1 year of age decreased from 1927 to 1928 in twenty-one departments of France. These departments were, with few exceptions, located along the Mediterranean Sea, in the lower Rhone Valley, along the northern border of the central provinces, and in the Vosges region. In all the other departments of France, infant mortality shows an increase from 1927 to 1928, but principally in the departments of the West and the Northwest. The proportion of deaths among infants under 1 year of age, with relation to the total number of living births, rose to 91 per thousand, as compared with 83 per thousand in 1927 and 97 per thousand in 1926. While the infant mortality was higher than in 1927, 1924-1925 and 1922, it was nevertheless lower than in 1920-1921, 1923, 1926 and in 1913, in which year it reached 114 per thousand. Furthermore, the results for the first quarter of 1929, with relation to the corresponding period of 1928, have been announced. This first quarter furnishes an excess of 70,205 deaths over births. In the corresponding period of 1928, there was an excess of 7,733 births over deaths, and, in 1927, an excess of 32,252 deaths over births. The excess of deaths over births for the first quarter of 1929 is due, on the one hand, to a slight diminution in the number of living births (188,467 in 1929, as against 197,228 in 1928 and 189,575 in 1927), but also, and more particularly, to a very marked increase in the number of deaths (258,672 in 1929 as compared with only 189,496 in 1928 and 221,867 in 1926). This increase is due to the epidemic of influenza and to the rigors of an exceptionally cold winter, which brought about a recrudescence of mortality due to diseases of the respiratory passages. Similar effects were recorded for the same period in England, the only other country for which the statistics for the beginning of 1929 have been published.

The Conditions of Tolerance for Bone Grafts

The numerous methods of bone grafting and of prosthesis for losses of bone substance, for which the Great War furnished a wide field of experience, have led to many disillusionments. It appears established by recent researches that the essential condition for the proper tolerance of pieces of prosthesis is that they shall be adjusted with rigorous precision, and that they shall reproduce exactly the fragment that is to be replaced. This result can be obtained only by extremely precise preliminary measurements, which have fortunately become possible by the aid of the radiographic compasses of M. Contremoulins. This was set forth clearly in a communication (accompanied by demonstrations) presented to the Academy of Medicine by the surgeon Robineau. Robineau and Contremoulins employ, to replace losses of substance of great extent, steel encased in ebonite or aluminum bronze, either naked or covered with hardened rubber. Whichever material is utilized, the tolerance of the organism is perfect if the fitting of the graft to the bone is correctly accomplished. A correct fitting is effected by attaching adjusted grafts to the healthy bone. This insures that the pressure exerted on the walls of the bone will be uniformly distributed. The practical experience of Robineau covers nine years in dealing with defects of the neck of the

femur, and four years with grafts replacing diaphyses. His observations are in perfect accord with the biologic researches of Leriche and Policard. These results are due to the application of methods of radiographic measurement invented by Contremoulins. To repair fractures of the neck of the femur, the surgeon must blindly introduce a screw or a graft into this part of the bone, it being very important to reach the center of the head of the femur. It is at this point that radiographic measurement enters in. The center of the head of the femur is determined, a new kind of compass having been invented by Contremoulins to guide the surgeon or, rather, his drill and the screw, to the exact center of the head. The inventor worked two years on the problem before he was able to solve it. A study of roentgenograms of those operated on, whose cases have been followed for a number of years, reveals some interesting facts. Sometimes the bone behaves well and retains its normal appearance; sometimes it becomes rarefied and less opaque, and will tolerate no longer the screw that has been introduced, whether it is of ox bone or of metal. Contremoulins has discovered the laws governing the tolerance of bone tissue toward synthetic or prosthetic grafts, and has shown that it is a question of the precise fitting and adjustment of the grafts. For example, if a screw is poorly fitted in a bone, so that there is a tendency for it to rub or to play, rarefaction of the bone sets in. If it is set mechanically correct, the bone is not altered and the tolerance is perfect. Human bone is precious material and methods of mechanical precision must be employed in working with it.

The Successful Use of the Bacteriophage in the Treatment of Phlegmons of Dental Origin

Professor Gosset and his collaborators have collected a series of 335 cases of therapeutic utilization of the bacteriophage of d'Herelle. Dr. André Raiga, head of the surgical clinic of the Salpêtrière, has reported to the Société de stomatologie seven of his observations concerning phlegmons of dental origin. Of the seven patients, five presented recent accidents, two others accidents dating back seventy-five days, which had resisted various therapeutic methods. All these cases were characterized by severe pain and marked trismus, several of the patients not having slept for several nights. When the pus had collected, the technic consisted in puncturing the collection and in instilling a few drops of a 1 per cent polyvalent bacteriophage. If, however, one encountered a hard tumefaction, bacteriophage was applied in situ by instillation or injection. The results were constant and were characterized by almost immediate relief of the functional phenomena (pain and trismus) which, in most cases, was brought about during the hours that followed the intervention; by rapid relief of the general symptoms, and by amelioration of the physical signs. The author gives a very complete study of these various observations from the point of view of the fall in temperature. When it occurs suddenly, with chills and sweats, it is a sign that recovery is near. From the standpoint of the variations in the leukocyte formula under the influence of treatment and especially from the bacteriologic point of view, the last mentioned point gives rise to important practical deductions. In three of his patients, the author discovered a microbic infection, in which the enterococcus was involved. These three cases did not progress toward recovery so rapidly as the others. Dr. Raiga explains the fact thus: The enterococcus has the property of rendering its milieu acid and hampers thus the action of the bacteriophage, which can act only in an alkaline medium. The author recommends also the use of bicarbonated serum along with instillations of the bacteriophage. In these three cases also, the author had been induced to apply several punctures to the collections of pus; and he noted that, after each puncture, the germs became less numerous and less virulent. The author admitted that there are cases in which the bacteriophage does not seem to act, even with the addition of bicarbonated serum. In such cases, an examination of the blood reveals the presence of antibacteriophagic or antiphagic properties, which will disappear under autohemotherapy.

TURKEY

(From Our Regular Correspondent)

July 28, 1929.

An Attempt to Smuggle Cannabis in Walnut Shells

A fraudulent attempt to smuggle cannabis into Egypt was recently discovered on a boat preparing to leave Constantinople for Alexandria. Thirty loads of walnuts were being deposited in the storeroom of the boat when it occurred to some of the seamen, while eating lunch there, to help themselves to the walnuts. On opening a few of them they found that they contained a powder instead of nutmeat. Continuing their search further the seamen were much disappointed to find again only powder. They then brought the matter to the notice of the officer, who conducted an investigation with the result that it was discovered that the whole load of walnuts seemed to contain cannabis, whereupon the captain notified the customs officials and the walnuts were confiscated. Further investigation revealed that a certain merchant intended to import the walnuts into Egypt.

The nuts had been halved and the meats removed and replaced by cannabis, after which they had then been carefully glued together. According to the narcotic law, imprisonment and fine await the offenders and for this reason the agent in his despair tried to commit suicide by throwing himself into the sea as he was being taken to the police. Strict control is being enforced by the customs officials but the need for still more careful control seems evident.

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Puberty at the Age of Four

A boy, aged 4 years, from a village in the province of Trapezant, was brought by his parents to the Gulhane Hospital in Constantinople because he showed all the signs of puberty. This was confirmed by the examining physicians of the hospital. The child was apparently in good health on the day of examination, but a few days after admission to the children's hospital he developed a severe illness and died. The case will be discussed at the next meeting of the medical society.

Epidemic of Meningitis

Cerebrospinal meningitis occurs in Turkey at times in epidemic form. The most recent serious outbreak was in the province of Adana, and especially the city of Tarsus, where all patients were treated gratuitously at the city hospital. The epidemic began in February, reached its peak in March and April, and had disappeared by the end of May. There were ninety-five cases with thirty-one deaths. The mortality was highest between the ages of 13 and 16. The ministry of hygiene took immediate precaution by sending the epidemiologist Dr. Vefik Vassaf, director of the field laboratory, to fight the disease. He remained for two months searching for healthy carriers and taking other measures. From 40 to 50 per cent of the healthy carriers were located among those who had had contact with infected persons.

Health Films

Health propaganda has been made an activity of the ministry of hygiene. Without incurring expense, the sixty-three provincial health departments can now avail themselves of health films provided by the ministry on condition that they forward them to another health department after two weeks, during which time the films must be shown gratuitously in the city cinemas, clubs and schools. In large cities the films may be kept for a month or six weeks. As there are no cinemas in the small towns and villages because of lack of electricity, traveling health cinemas will be maintained in the future. Some of the

films available are Tommy Tucker's Tooth, Your Mouth, Fly Danger, How to Live Well and Long, Drinking Health, The Error of Omission, and a film about syphilis.

Asylum for Homeless Children

The municipality of Constantinople has recently converted that part of the mosque of St. Sophia which was formerly used as a religious school into an asylum for homeless children. The asylum affords sleeping accommodations, but it is not being used at present as the children prefer to sleep in the open during the hot months. It will be opened again as the weather indicates.

JAPAN

(From Our Regular Correspondent)

July 20, 1929.

Measures Against Rabies

The control of rabies, which has always been a function of the department of agriculture and forestry, was transferred to the department of the interior in April. The first conference on rabies was summoned by the minister, April 19, and it was agreed to carry out more strict control of all pet dogs, to destroy all stray dogs, and to make antirabic injections compulsory for all dogs at national expense. An antirabies week was held all over the country, by order of the ministry, and pamphlets and posters were distributed, and lectures and cinemas were given in Tokyo and other cities.

Antituberculosis Week

Under the auspices of the Japan Antituberculosis Association, the fifth antituberculosis week was held beginning April 24. The enterprise was aided by the interior department, the railways department, the bureau of social affairs, the bureau of insurance of the communication department, and other official or private institutions. Pamphlets and leaflets were distributed, and lectures and shows were given for the benefit of the public. Lectures were broadcast, April 27, by several well known physicians, and in Tokyo Drs. Kitasato, Kitajima and Kanasugi, and Messrs. Makoshi, Yamada and Yano lectured in the Nichinichi-shibun. The Japan White Cross Society, an antituberculosis association, held lectures in the Association Hall at Kanda, Tokyo. The themes and the speakers were as follows: Present Status of Antituberculosis Work in Japan, by Dr. T. Sato; Children and Tuberculosis, by Dr. D. Okada; The Digestive Tract and Phthisis, by Dr. K. Kondo; Phthisis and Free Treatment, by Dr. O. Harashi; Social Work for the Prevention of Tuberculosis, by Dr. R. Takano; Tuberculosis and Nourishment, by Dr. T. Saeki; The Radical Treatment of Tuberculosis, by Dr. O. Hayashi.

Memorial Services

April 4, under the auspices of the Japan Medical History Society and the Shoshin Medical Association, a service was held in memory of the medical pioneers of this country, including Isarago, Horiuchi, Koseki and others who were awarded the imperial court rank, Nov. 10, 1928, on the occasion of the enthronement of the emperor. April 4 was also the memorial day for the first postmortem examination that was performed by Japanese students of Dutch medicine in the neighborhood of Tokyo (then called Edo) in 1771. Memorial lectures were given by Dr. Y. Fujikawa and others, and the manuscripts, letters and books written by the deceased physicians were exhibited in a room of the building where the service was held.

The nineteenth anniversary service in honor of Robert Koch was held by Baron Dr. Kitasato, May 27. A Shito shrine stands in front of the Kitasato Institute in memory of this great German scholar, who visited Japan in 1907, and whose influence on our medical circles is still felt. Senge, vice president of the Izumo Shito (Taishakyo) Sect, directed the Shito service, which Dr. Kitasato and many others attended.

Ceremonies

Dr. K. Yamagiwa, professor emeritus of the Tokyo Imperial University, has been honored with the prize, for 1928, of the Medical Association of Munich for his studies on cancer. He is the first Japanese who has received the prize. His pupils and friends held a congratulation meeting, May 4, in the Gakushikai Hall at Kanda, Tokyo. The presentation ceremony took place at the German Embassy, Tokyo.

The new institute of preventive medicine of the Keio Medical College, which was established chiefly by a contribution from the Rockefeller Foundation, has been completed. The opening ceremony was held, May 17.

Dr. H. Miyake's statue, which was erected in front of the portico of the surgical ward of the Kyushu Imperial University, has been dedicated by his students and admirers. The ceremony was held, June 1.

Medical Lectures

In honor of Prof. Robert W. Hegner, professor in the Johns Hopkins University, Baltimore, who has been visiting in Japan, a lecture and meeting, proposed by some of his Japanese friends, including Drs. S. Gto, H. Hayashi, T. Kitajima and M. Nagayo, was held in the Tokyo Imperial University, May 27.

Dr. S. Uematsu, professor of psychiatry in the Keio Medical College, gave a popular lecture, June 15, on sleep in reference to health, under the auspices of the Japan Red Cross Society at the society hall, Tokyo. Movies concerning health were shown after the lecture.

Rise of the Death Rate

The bureau of statistics of the home ministry has published the results of investigations on the national censuses taken in 1920 and 1925. According to the life table, the death rate of this country, now 20 per thousand persons, is gradually rising. The highest death rate is below 1 year of age, 162 males and 143 females per thousand, which is mainly caused by deformity, natural weakness, pulmonary disease, bronchitis, diarrhea and enteritis. The lowest rate is between ages 1 to 10. After 10 it begins to rise, and the highest rate occurs at the age of 19 in the male and of 21 in the female. This is caused by tuberculosis and unhealthful equipment in factories.

Death Rate per Thousand

Age	Sex	1891-1898	1899-1903	1908-1913	1921-1925
Under 1 year.....	Male	149.0	156.9	160.5	161.5
Under 1 year.....	Female	133.8	140.9	145.0	143.3
1 to 10 years.....	Male	4.5	3.3	3.2	3.2
1 to 10 years.....	Female	4.4	3.8	4.0	3.7
11 to 20 years.....	Male	8.2	8.3	8.9	10.8
11 to 20 years.....	Female	9.0	9.6	10.8	12.1
21 to 40 years.....	Male	11.2	10.4	9.6	10.5
21 to 40 years.....	Female	11.8	11.4	10.7	11.3

The average length of life for children who reach the age of 1 year is 42.14 years in the male and 43.09 in the female. The longest life expectancy is 50.94 years in the male and 51.20 years in the female in children 3 years of age. The rate gradually becomes lower, about 40 years in those who reach the age of 20 and 20 years in those who reach the age of 50.

To Study in Germany

Miss Sada-ko Takegawa has been ordered by the government to go to Germany to pursue her studies in medicine. In 1926, at the age of 24, she was graduated from the Girls' Medical College established by Mrs. Yayoi Yoshioka, and soon thereafter entered on the study of orthopedic surgery in the Tokyo Imperial University. Owing to her talent and skill, she has been chosen among others for this special training, and will leave for Germany in September.

RIO DE JANEIRO

(From Our Regular Correspondent)

July 15, 1929.

Atypical Forms of Epidemic Encephalitis

Prof. A. Austragesilo, after brief reference to three atypical cases of epidemic encephalitis which he had observed in hospital patients, proposed the following classification: incipient atypical forms, atypical forms due to the disappearance of symptoms, and atypical forms complicated by one or more unusual manifestations. The first form is that which shows the toxic type of fever (as in typhoid), cataphrenia, febrile delirium, and chorea, without any of the principal symptoms, especially somnolence. The second form is that in which the principal symptoms, such as fever, somnolence, and involvement of the third nerve, are present at the beginning, but disappear, leaving only the secondary symptoms, such as hemitremor, chorea, hemiparkinsonism, hiccup, ocular myoclonia with nystagmus, and oculogyric crisis. The third form is characterized by abnormal conditions, which may complicate the initial picture of the disease and in which epileptiform or myoclonic alterations, paralysis (hemiplegia, monoplegia and paraplegia), hysteroid crisis, delirious conditions simulating psychosis, forms of agrypnia, and the like, are included. Based on the many papers which have been presented before the medical societies all over the world and in which it has been demonstrated that the atypical and unusual forms of the disease belong to the clinical picture of epidemic encephalitis, the author formulated the following law, by means of which many cases that would likely pass unobserved may be recognized: "Whenever we meet with classic pictures, either nervous, organic or functional, infectious or noninfectious, which cannot be classified among known infections by means of laboratory tests, we are justified (at least for the present) in diagnosing them as epidemic encephalitis." The disease in Brazil has not been widespread, and the author's cases were not serious. The treatment is empiric. It may consist of intravenous injections of sodium salicylate, methenamine (which may be given either subcutaneously, intravenously, intraspinally or orally) jaborandi, epinephrine and cerebrospinal fluid autotherapy. The author has used the last method in some nervous and mental diseases. The method consists in the withdrawal of cerebrospinal fluid and the injection of it into the same patient, subcutaneously or intravenously.

Differential Radiodiagnosis in Pericardial Effusion

Dr. Manoel de Abreu recently presented a paper on differential radiodiagnosis in pericardial effusion, which he wrote with the collaboration of his assistant Dr. Victor Cortes, before the National Academy of Medicine of Rio de Janeiro. He reported three cases in which he followed this technic: radiography in the dorsal position or slightly in Trendelenburg's position, and in the vertical position. The diaphragm in each case was approximately at the normal height. The speaker said that the pericardiac exudate produced a shadow on the film between the two clear fields of the lungs. The superior border of this shadow is oblique from right to left, crosses the superior vena cava and extends to the region at which the innominate artery emerges. In the right anterior oblique portion of the film, the posterior border of the shadow ends in a plane lower than the anterior because of the topography of the pericardiac attachments. On the film, the left anterolateral border of the pulmonary artery and that of the ascending aorta, which are lineal, disappear and are replaced by a unique contour, whose projection is long and indefinite. In large effusions the image of the trachea is deviated toward the upper right side and backward. The left anterolateral border of the descending aorta tends to disappear in relation to the volume of the pericardial effusion because the pulmonary expansion at that level is reduced by compression. The author then described what was seen in the left anterior oblique film. He said that the shadow was homogeneous, with its borders diminished in intensity. When there is a double contour in the film, it is an indication that pleurisy is associated with the pericardial effusion. Finally the author described the shadows that show the presence of heart hypertrophy and mediastinal pleurisy.

Purpura Hemorrhagica and Its Surgical Treatment

Prof. A. Donati and Dr. F. Bayma reported that, in two cases of hemorrhagic purpura, one of them (Bayma) obtained clinical recovery in one case by performing a splenectomy, and in the other by ligation of the splenic artery at the level of the middle third of the body of the pancreas. The authors stated that these operations were the first that have been performed in Brazil in the treatment of purpura hemorrhagica.

Hepatic and Blood Lipoids in Patients with Yellow Fever

Dr. Eduardo Meirelles recently read a paper of his co-worker Dr. Ortiz Patto on hepatic and blood lipoids in patients with yellow fever, before the National Academy of Medicine of Rio de Janeiro. He reached the following conclusions: 1. The serum of patients with yellow fever causes a diminution of alexin in guinea-pigs; and there is a lipoid in the liver of patients with yellow fever which produces a maximal diminution of alexin in guinea-pigs. These properties were found only in the liver of patients with the disease, and in the liver of monkeys experimentally infected. Fixation is not influenced by precipitation, and a good extract may solve the diagnostic problem.

ITALY

(From Our Regular Correspondent)

Aug. 1, 1929.

Increased Interest in Colonial Studies

Before the chamber of deputies, during the discussion of the colonial budget, Professor Castellino, medical clinician of Naples, pointed out that, in all the countries of Europe, new scientific institutes specializing in colonial studies are being established. Italy, too, has an institute of that type, but it is not displaying at present a high degree of activity, chiefly because it has not the necessary funds to establish research fellowships for young investigators. Professor Castellino proposes the creation of a special *università coloniale*, which would deal with all subjects pertaining to the colonies, with special emphasis on medical studies and colonial hygiene. These studies, according to the speaker, should be developed also in some one of the existing faculties of medicine, the instruction being entrusted to professors of the pathology of tropical diseases.

Discussion of State Hygienicosanitary Services Before the Senate and the Chamber of Deputies

In a discussion before the senate and the chamber of deputies, the budget of the minister of the interior, the various problems affecting the hygienicosanitary public services and public aid and welfare were gone over at length.

Carapelle considered the utility of merging under the Direzione generale della sanità all the functions and movements of a sanitary nature that at present are scattered through various ministries or entrusted to what are practically state organizations. In that manner, a uniform management would be assured.

Deputy Zingali discussed the demographic problem, and pointed out that the general mortality has been reduced from 17.7 per thousand of population in 1922 to 15.7 per thousand in 1928.

Undersecretary of State Bianchi gave an account of the principal measures adopted by the government, in matters of health and public aid, during the year 1928. The law pertaining to the protection of motherhood and childhood (the Opera nazionale has now a budget of about 80,000,000 lire, or $4,000,000) has been expanded by addition of provisions pertaining to the aid to be given abandoned illegitimate children. The congregazioni di carità and the local institutions of sanitary aid and social welfare have been reorganized.

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Before the senate, Professor Maragliano spoke of the antituberculosis crusade, which is based on these three principles: the provincial antituberculosis conventions, compulsory insurance against tuberculosis, and the Opera di assistenza alla fanciullezza. In addition to the creation of hospitals and sanatoriums, provision is made at present for the training of tuberculosis specialists in the suitably equipped Istituto Mussolini. The speaker expressed regret that preventive vaccinations against infectious diseases, more particularly typhoid and tuberculosis, are not more widespread in Italy. In view of the importance and the complexity of the sanitary services in Italy, he would like to see them all concentrated under a suitable ministry. He recommended the creation of further institutes and sanitary laboratories.

Professor Marchiafava, too, spoke on the subject of the antituberculosis crusade, and recommended, among other things, the rigorous enforcement of the law prohibiting the administration of alcoholic beverages to children under 14 years of age.

Prizes in the Biologic Sciences Offered by the Academy of the Lynxes

The Accademia dei lincei held recently its annual formal session, in Rome, at its headquarters in the Palazzo Corsini. The royal family was present. Professor Rizzo delivered the academic discourse. The royal prizes were offered, this year, in archeology and in normal and pathologic physiology. The prizes in physiology were conferred on Prof. Carlo Foà, of the University of Milan, and Professor Quagliarello of Naples. The prize in the biologic sciences was bestowed on Professor Visco. Professor Palombi was the recipient of the Grassi prize in parasitology.

Meeting of the International Commission on Occupational Diseases

The Commissione internazionale permanente per le malattie professionali, created, in 1906, at Milan, at the suggestion of Professor Devoto, recently held its fourth session, at Lyons. Italy was represented by Professor Devoto, president of the commission; Professor Ferrannini, medical clinician of Cagliari, and many other university professors and official delegates of various social sanitary services.

Professor Ferannini presented the third communication on the subject "The Endocrine Apparatus and Intoxications," aided by Professor Pende of Genoa and Professor Biondi of Siena. The speaker pointed out that, of the endocrine glands, only the suprarenals (through their cortical portion) have a true antitoxic function and that therefore renewed researches on the relations between the suprarenals and occupational poisons should be undertaken. Many occupational poisons impair the function and the structure of the glands of internal secretion, but none of them produce characteristic types of endocrinopathy. In occupational intoxications, including lead poisoning, the endocrine syndrome never constitutes the fundamental feature of the symptomatology. Hence it would seem that occupational poisons do not exert a selective action on the endocrine glands but have only a general influence, producing anatomopathologic lesions that are not of any special type. In order of frequency, there occur lesions of the genital glands (especially the female glands) and the suprarenals; next in order are the lesions of the pituitary body and the thyroid. Of the more grave poisons affecting the endocrine glands, special attention should be paid to lead, mercury, phosphorus, arsenic, benzene and asphyxiating gases.

The other members of the Italian delegation presented sixteen communications on the various subjects.

It was decided at this session that the name of the commission should be changed to "Commissione internazionale permanente per la medicina del lavoro." The next meeting will be held in Geneva, in 1931.

Memorial to the Soldiers of the Army Medical Corps

On the occasion of the festival of the Sanità militare, a bronze memorial in honor of the soldiers of the army medical corps who lost their lives in the Great War was dedicated in the Ospedale militare del Celio, in Rome. King Victor Emmanuel III was present at the ceremonies. Colonel Caccia of the army medical corps, chairman of the committee, recounted in his address the work of the sanitary troops during the war.

BERLIN

(From Our Regular Correspondent)

July 27, 1929.

The German Aerztetag

(Concluded from page 631)

Following Steffer, Prof. W. Hellpach, Ph.D., M.D., of Heidelberg presented a paper on "The Bases and the Limitations, the Fulfilment and the Degeneration, of Federal Medical Care of the Sick." If one is to take a just attitude toward the controversy in regard to health insurance and hopes to launch reforms based on correct principles, Hellpach stated, one must consider the final, philosophical, and abstract bases of disease. In time of sickness, the tragic disharmony between purely natural causality and the moral sense of the people is brought out in a very peculiar and impressive manner. Sickness and death often exclude entirely any manifestations of the senses; on the other hand, sickness often brings a deep purification; with its approach, essentials and nonessentials become distinctly differentiated. Moral fulfilment is separated from mere sensuous fulfilment of existence. The province of the physician appears, at first sight, to belong only to the sphere of the natural sciences. The best physician is not the one who can best comfort a patient in death but the one who can save his life. In view of these facts, has subjective confidence in the relation of the patient to the physician a place alongside the objective medical performance?

Social insurance first saw the light partly on account of an ethical sense of a social duty and partly by reason of shrewd political insight. Health insurance was, however, a necessity, for something had to be done to relieve the bad situation among the rapidly growing submerged classes that were entirely without medical care and for which compulsion appeared to be the only solution. The limitations of the insurance were reasonable and intelligible, and the accomplishments were magnificent. While it is true that many other factors have contributed to raise the standard of health among the people—medical progress along many lines, improvement in hygiene, advances in bacteriology and serology, more exercise and outdoor life—without the health insurance for the poorer classes the improvement in health conditions would not have been so certain and so general. By the unwise extension of compulsory and optional insurance to strata of society that were not in urgent need of it, the original charitable features of social insurance became distorted. and a period of degeneration has set in.

The speaker pointed out how health consciousness has degenerated into an unconscionable affectation of sickness. Instead of profiting from the art and skill of the physician in order to get well, many of the insured connive to use the skill of the physician to remain sick and to reap all possible advantages therefrom. After sickness had been socialized, and the *krankenkassen* practice furnished an ever increasing proportion of the total income of the physician, troubles began to arise. Dependence on the bureaucracy of the *krankenkassen* destroyed the age-old confidential relation between physician and patient just as certainly as dependence on the favor of the patients. The bureaucratic spirit gradually creeping in among the officers of the *krankenkassen*, whereas, according to the contract, self-administration was to prevail, was the main cause of the misunderstandings. This bureaucracy is the chief moving factor

in the senseless expansion of the compulsory insurance system, so as to take in new and socially higher strata of the population. However, the higher the insured stands socially, the more warped his conscience appears to be, when it comes to declaring and certifying to conditions of illness. The psychologic factor controlling the situation was the lack of confidence that the three parties manifested toward one another: the fear of the physicians lest the patients should demand too much of them, and the distrust of the administration of the *krankenkassen* toward the physicians and likewise the insured. In the practitioner's daily round, everything does not depend on the objective medical performance; the subjective confidence of the patient is very important, for here, aside from actual danger to life, certain moral factors play an important part in the question of the recovery of the patient—factors which appear to transcend at times purely natural causality. The patient can be led back to health only by the physician in whom he has real confidence; mere mechanical writing of prescriptions will seldom accomplish much. In addition to the ethical importance, this is the main therapeutic basis of the free choice of physician. The purely individualistic relation between physician and patient is, in many respects, a thing of the past, but in the free choice of physician something has been carried over from the old régime; just as, in every new system of ethics, something must be taken over from the old system, in order that the thread of consistent development may not be broken.

The speaker recognized as self-evident that the times have changed and have brought new moral concepts applicable to physicians. A new code of professional ethics is in the making, but the best in the old code deserves to be retained in the new code. From this point of view, Hellpach emphasized three chief demands that should lie at the basis of any practical reorganization of the present system of health insurance. The right of privileged communication, which has long been the bulwark of the ethical confidential relations existing between physician and patient, must be rigorously restored. The regulation that the panel physician must enter his diagnosis on the patient's record card should be abolished. The card should show only opinions as to the degree of the patient's disability, such as: "able to work," "unable to work," "patient should go to bed." All matters pertaining to the direct medical care of the patient should, without exception, be taken out of the hands of the administrative personnel of the *krankenkassen* and turned over to bodies composed entirely of physicians. The speaker disapproves of the demand of some physicians that the medical profession be represented in the business administration of the *krankenkassen*. He holds that the physician should have no hand in the business administration. Only on that condition can he consistently hope to keep the administrators out of his sphere of activity. Furthermore, the panel physician must be protected against himself, as it were, by the limitation of the number of his clients, as is done in England. Finally, the amount of the dues and the nature of the insurance should be regulated according to the amount of the income of the insured. With respect to the lowest order of income (up to $700 per annum), the compulsion feature may well be retained, and likewise all the benefits that have been developed in the past. Persons with the next higher order of income (from $700 to $1,400) might be granted the optional right to federal insurance. Here a graduation scale of dues should be applied, and such persons might be permitted to participate in the benefits arising from free medical care and free medicines, but sick benefits in the form of money should be granted only in especially long illnesses. Persons with an income above $1,400 should, Hellpach thinks, be excluded from the privilege of participating in the benefits of federal health insurance, and either should depend on their own financial resources or should take out insurance in some company, the same as they do with respect to life and fire insurance.

In closing, the speaker demanded that high intellectual standards and a broad outlook should characterize future sociopolitical legislation. The state should exercise paternal care only over those who are absolutely unable to care for themselves. It should be the pride of every citizen to be self-reliant, and not dependent on others. The moral problem of health insurance reform (as compared with the general scope of which all technical questions appear petty) is as to how a government by the people can so connect the visitation by disease with a plan of popular education as to enforce the idea that the duty of a citizen to keep well is the fundamental basis of the citizen's right to federal assistance, if needed, to preserve his health; for history holds out to no commonwealth the right to continued existence which does not possess the intelligence and the inherent energy to make it plain to its citizens that their rights presuppose, first and foremost, the fulfilment of their duties to the state.

Following the presentation of the papers and in conformity with the main ideas advanced by the speakers, the Aerztetag adopted a resolution in which that body recognizes the need of social insurance legislation for the German people, but only so far as it needs such legal protection and so far as Germany's economic status is able to bear the associated financial burdens. From these points of view, the Aerztetag recommends several essential modifications of the federal health insurance act and therefore commissions its executive committee, in cooperation with the Hartmann-Bund, to submit suitable proposals to the federal committee having the matter in charge. It demands that the system of free choice of physician be recognized as a definite principle. It approves the creation of a federal chamber of physicians, together with the establishment of a German ethical order of physicians. The plans advocated by some of extending social insurance by taking in new strata of the population and raising the limit of the income under which health insurance becomes compulsory, and likewise the introduction of control physicians within the ranks of the administrative officials, are rejected. The Aerztetag welcomes the expressed intention of the federal ministry of labor to submit to the medical profession in advance its proposed modifications in the federal health insurance act, and expresses the definite expectation that such draft be submitted sufficiently in advance to permit the medical profession to study it and make known its views on the subject.

The further transactions of the Aerztetag concerned the relation between the *krankenhaus* physician and the ordinary practitioner.

Marriages

EMERSON PAUL SHEPARD, Columbus, Ohio, to Miss Madge Elizabeth Worcester of Oberlin, August 14.

ALAN R. ANDERSON, Trudeau, N. Y., to Miss Lide Frances Anderson of Saranac Lake, April 13.

CHARLES L. LUCKETT, English, Ind., to Miss Elizabeth Bevan of Carbondale, Pa., July 22.

WILLIAM T. HARRIS to Miss Sarah Tomlinson, both of Troy, N. C., July 17.

C. M. N. ANDERSON to Miss Helen Pringle, both of Spokane, Wash., June 1.

ROBERT LEE BIRD to Mrs. Deliah Herbert, both of Covington, Ky., in July.

PALMER W. GOOD, River Forest, Ill., to Miss Elvina Oberhelman, June 22.

GEORGE B. ADAMS to Miss Virginia Surtees, both of Atlanta, Ga., August 3.

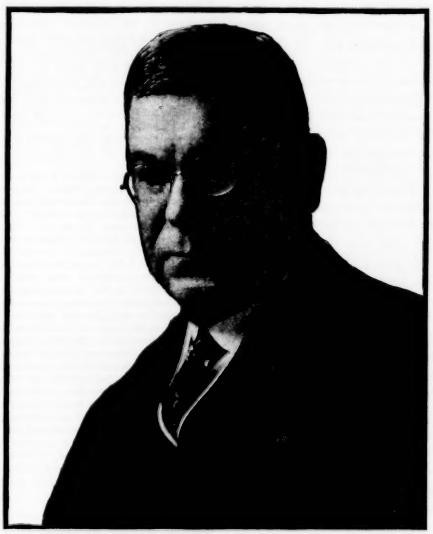
PAUL REZNIKOFF, New York, to Miss Dorothy Eliza Grout, July 19.

JEROME WAGNER, New York, to Miss Norma Terris, August 20.

Deaths

Charles Williamson Richardson, ⊕ member of the board of trustees of the American Medical Association, died in Boston, August 25, aged 68, following an operation performed some weeks ago. Dr. Richardson was born Aug. 22, 1861, in Washington, D. C., where he practiced for many years. He was a student in the Columbian, now George Washington University from 1878 to 1880, and received his M.D. degree from that institution in 1884. He also received the M.D. degree from the University of Pennsylvania in 1884. Both institutions recognized his attainments in scientific medicine by conferring the honorary D.Sc. degree on him, George Washington University in 1921, and the University of Pennsylvania in 1927.

Dr. Richardson was professor of laryngology and otology in George Washington University from 1891 to 1924 and was at the time of his death professor emeritus. He was a fellow of the American Laryngological, Otological and Rhinological Society and president from 1902 to 1903; a member of the American Otological Society and president from 1914 to 1915; a member of the American Laryngological Society and president from 1928 to 1929, and a member of the American Climatological and Clinical Society and president from 1921 to 1922. He was also a fellow of the American College of Surgeons. In the American Medical Association he served as president of the Medical Society of the District of Columbia in 1904, as chairman of the Section on Laryngology, Otology and Rhinology in 1925, and as a trustee of the Association from 1920 to the time of his death. The term for which he was elected would not have expired until 1931.



CHARLES WILLIAMSON RICHARDSON, M.D., 1861-1929

Besides numerous contributions to the periodical literature of his specialty, Dr. Richardson wrote special sections for several systems on the practice of medicine and for volumes on diseases of the nose and throat.

During the World War he served as director of the section of defects of hearing and speech in the office of the surgeon-general and he was at the time of his death colonel in the medical reserve corps. In recent years he had been associated intimately with problems of research on otosclerosis under the auspices of the National Research Council.

As a trustee of the Association he served conscientiously and indefatigably, attending every session, working until late in the evening, and acting for the Association frequently in important affairs in Washington when official representation was needed. He had the ear and the confidence of many men high in governmental public life, including several Presidents of the United States, and he spoke always for the good of mankind. Seriously sick as he was, he attended the Portland Session from July 8 to 12, took part in every session of the Board of Trustees and of the House of Delegates, and of the section in which he was especially interested.

Dr. Richardson was typical of the best in the practice of medicine as a profession. His life was characterized by the devotion of all of his powers and skill to the alleviation of suffering and the correction of physical deficiencies, to citizenship and to the public welfare.

Henry Foster Lewis ⊕ Wooster, Ohio; Harvard University Medical School, Boston, 1888; professor of physical diagnosis, College of Physicians and Surgeons, Chicago, 1891-1903; associate, instructor and assistant professor of obstetrics and gynecology, Rush Medical College, Chicago, 1899-1907; professor and head of the department of obstetrics and gynecology, Loyola University School of Medicine, 1910-1918, and formerly professor of obstetrics at the University of Illinois College of Medicine; served during the World War; in 1895 curator of the museum and for many years on the staff of the Cook County Hospital; aged 65; died, August 5.

Samuel Colvin Cowan, Union Springs, Ala.; Medical College of Alabama, Mobile, 1889; member of the Medical Association of the State of Alabama; also a druggist; chairman of the county board of health and member of the board of education of Union Springs; state senator; aged 68; died, August 10, in a hospital at Montgomery, following an operation for appendicitis.

George Root Miller ⊕ Hartford, Conn.; College of Physicians and Surgeons, Baltimore, 1886; past president of the Hartford County Medical Society, and past president of the board of health; on the staff of the Hartford Hospital; aged 73; died, July 16, of melanotic sarcoma.

Andrew G. Anderson, Salina, Kan.; St. Louis College of Physicians and Surgeons, 1898; member of the Kansas Medical Society; on the staffs of the Asbury Protestant Hospital and St. John's Hospital; aged 59; died, August 13, of food poisoning.

Roy H. McGrath, Fredericton, N. B., Canada; McGill University Faculty of Medicine, Montreal, Que., 1902; formerly member of the board of health; aged 51; on the staff of the Victoria Hospital, where he died, May 23, of heart disease.

Thomas Lee Haney, Flat River, Mo.; Beaumont Hospital Medical College, St. Louis, 1901; member of the Missouri State Medical Association; past president of the board of education; aged 58; died, July 22, of acute dilatation of the heart.

Dorwin Deloss Barr ⊕ Taylorville, Ill.; Miami Medical College, Cincinnati, 1890; formerly secretary of the Christian County Medical Society; aged 73; died, August 9, of a skull fracture received in an automobile accident.

Newton Craig, Atlanta, Ga.; University of the South Medical Department, Sewanee, Tenn., 1901; member of the Medical Association of Georgia; aged 60; died, August 4, at Wilkes-Barre, Pa., of angina pectoris.

Joseph Thomas Asbury, Rochester, Minn.; Medical Department of the University of Illinois, Chicago, 1902; aged 53; was accidentally killed, July 4, while driving a tractor on the grounds of his home.

Thomas L. Lockhart, Owensville, Ind.; Eclectic Medical Institute, Cincinnati, 1899; member of the Indiana State Medical Association; formerly a druggist; aged 58; died in July, of carcinoma of the liver.

Robley D. Walters, Easton, Pa.; Jefferson Medical College of Philadelphia, 1884; member of the Medical Society of the State of Pennsylvania; aged 70; died suddenly, August 5, of heart disease.

Woodford John Copeland, Coral Gables, Fla.; Medical Department of the University of the City of New York, 1896; aged 54; died, August 10, at Elmira, N. Y., of angina pectoris.

Robert Glen Gilbert, New Orleans; Medical Department of the Tulane University of Louisiana, New Orleans, 1890; aged 63; died, February 16, of acute dilatation of the heart.

CORRECTION

Dr. Carmalt Was Consulting Surgeon.—In the obituary of Dr. William Henry Carmalt in THE JOURNAL, August 10, the words "consulting dermatologist" in the line before the last should have been "consulting surgeon."

Correspondence

CANTHARIDES POISONING

To the Editor:—About 5 o'clock one morning a call came saying that A. S. had taken poison the night previously by mistake. About ten hours had elapsed since his taking the poisonous substance. His lips and the inside of his mouth were burned, the tongue being the worse. His tongue was glistening white and semitransparent to a depth of about one-eighth inch. It was a burn such as phenol, compound solution of cresol or silver nitrate might give. There was no odor discernible.

The patient stated that, coming into the house the night before, he went to the cupboard and took down a paper bag which he thought contained licorice powder; since there was not much in the bag he swallowed the contents and disposed of the bag by throwing it into the toilet. He had suffered considerable pain during the night but would not call any one to tell about it. There were no indications that anything had been taken with suicidal intent and this brown powder was all that the patient would mention.

The patient was removed to the hospital and, while preparations were being made to wash the stomach with lime water and table salt, he vomited. This vomitus was sent for chemical analysis, which gave no clue to the medicine taken.

Working in the dark as to what medication to give, sodium thiosulphate was administered intravenously and magnesia, tannic acid and charcoal by mouth every fifteen minutes to neutralize the poison if possible while waiting for the report of the analysis.

The urine contained considerable free blood; on being heated, it was almost entirely coagulated. Next day the urine began to clear, although some free blood was still present and the albumin was much lessened. The third day the urine was practically free from blood and almost no albumin, and the patient was allowed to go home.

Inquiry at the drug stores revealed that the patient had purchased half an ounce of cantharides powder supposedly to breed animals. When he was confronted with this fact he admitted taking a "pinch" of the powder a couple of hours before he took the supposed licorice powder, and said that the burning began after he had taken the cantharides and not after taking the licorice powder, as he led us to believe at first. (A pinch was later weighed and was about 4 to 5 grains.) The patient gave no symptoms which would usually follow the taking of cantharides except frequent urination. The patient has recovered, with no apparent ill effects.

The difficulty presented by the case was the nature of the burn, no history of any substance that might cause it, and no evidence in the stomach analysis.

P. F. DIEFFENBACHER, M.D., Camden, Me.

BENZENE POISONING AND AGRANULOCYTOSIS

To the Editor:—I was much interested in reading the article by McCord on "The Present Status of Benzene Poisoning" in THE JOURNAL, July 27. In the author's discussion of agranulocytosis, he states that "hemorrhage is an almost invariable concomitant" and that "purpura hemorrhagica is present in the greater number of instances." I think this is a misstatement.

I have failed to observe hemorrhage in five cases of agranulocytosis seen recently, nor have I seen much reference to it in the literature. The platelets in agranulocytosis are not decreased except in the rare case lasting more than two weeks and hemorrhage does not therefore occur.

The author corroborates this statement himself when he writes that in agranulocytosis the coagulation and bleeding times are likely to remain unchanged. The chief differential point hematologically between agranulocytosis and benzene poisoning is that benzene destroys the entire bone marrow, causing a marked anemia (hyperchromic in type), a leukopenia, and a reduction in platelets, the latter causing hemorrhages.

In agranulocytosis, on the other hand, the red blood cell forming and platelet forming elements are not attacked and anemia to any extent does not develop, nor does hemorrhage occur. It is only the white blood cell forming tissue which is attacked, resulting in almost complete disappearance of myelocytes from the marrow.

WILLIAM DAMESHEK, M.D., Boston.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

INFLAMMATION OF THE PAROTID GLAND

To the Editor:—A salesman, aged 33, white, married, first consulted me, Jan. 6, 1926, because of a swelling at the angle of the right jaw which he had noticed while shaving. It was slightly tender and had been getting noticeably larger all day. He had been chilly all day, with some headache and nausea. He had had a sore throat two weeks previously. His temperature was 99.6 F.; the pulse was 72. There was a tender swelling of moderate size in the region of the right parotid. Sour things or chewing of food did not produce pain. He had infected tonsils and moderate pyorrhea, with several apical abscesses. Otherwise the examination was negative. A day or so later, the left parotid became swollen and tender similar to the right. This condition continued for a month or more and gradually improved, but the parotids were always somewhat enlarged and somewhat tender. There was a continuous tendency to stringy saliva and dry mouth. Sometimes the mouth was entirely dry. The tonsils had been removed in July, 1925. All the teeth were removed in July, 1927. During the period from the onset in 1926 to the present, the dryness of the mouth has become gradually worse. The parotids are always swollen more or less. Attacks of increased swelling accompanied by moderate rise in temperature, and general malaise, and increase in tenderness have occurred at intervals of one to three months, with a period of temporary improvement following. The senses of taste and smell were lost during the fall and the winter of 1928, and at present both are completely absent. Feb. 27, 1929, there was apparently no saliva coming from the mouth of either of Stenson's ducts. Both parotid glands were swollen and tender. Small bristle probes were passed with difficulty into both ducts. These were followed by larger ureteral catheters, after which a little saliva and some pus passed from the ducts. Smears of the pus did not show bacteria on several occasions. The red and white blood count was normal. Roentgen examination of the parotid gland and ducts did not reveal calculi. The ducts have been catheterized once a week since February 27, with some considerable diminution in the size of both glands, especially the right. There is now an intermittent flow of saliva from both ducts, but there is still considerable dryness and there is still loss of taste and smell. The patient's general health is good. Please omit name.

M.D., Oregon.

ANSWER.—The picture presented by this clinical history does not fit any of the diseases associated with a long standing enlargement of the parotid glands. The marked dryness of the mouth is difficult to reconcile with any of these conditions except that of Mikulicz's disease, or pseudohypertrophy. This, however, usually involves the lacrimal glands, and, in it, pain or tenderness and suppuration are absent. Kidney disease, leukemias, such intoxications as lead poisoning, tuberculosis, other specific infections and salivary calculus, although possibilities, seem to be ruled out by the history. Because of this, chronic infection and Mikulicz's disease seem to offer the best diagnostic possibilities. Negative smears do not rule out the former, as frequently anaerobic cultural methods demonstrate organisms, especially streptococci, in such cases. Loss of taste and smell is probably due to the long continued dryness of the mucous membranes.

The treatment does not differ radically in either condition. Potassium iodide and arsenicals are given internally. Gentle dilation of the ducts and milking of the glands by massage may be used to secure drainage, and diluted tincture of iodine may be applied locally. If organisms can be obtained in culture, a vaccine may be prepared and used with some promise of promoting improvement. Irradiation with roentgen rays has been suggested. Surgical incision or excision of the parotids is, as a rule, unwise.

The course and prognosis of the condition is uncertain but likely to be associated with remissions and with a more or less permanent enlargement and fibrosis of the gland tissue involved.

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TREATMENT OF PERSISTENT INFECTION IN AXILLA

To the Editor:—A woman, aged 36, during the past year has had an antrum infection, otitis media and suppurative mastoiditis, and has badly infected tonsils. Five or six months ago she began to have staphylococcus folliculitis in the left axilla, to which the infection has been confined. At first the infection was rather strictly limited to the deeper layers of the skin but recently has shown a slight tendency to go deeper. It has exacerbations but at times the patient seems nearly well. There has been little constitutional effects. The axilla has been opened several times, as have also many individual small abscesses. The patient has had incisions, heat, violet ray, x-ray, alcohol and mercuric chloride dressings, as well as tin, yeast, hydrochloric acid by mouth, and vaccines and manganese by the subcutaneous route. Outside of the removal of all foci of infection and general measures, have you any suggestions for treatment of this case? Please omit my name.

M.D., New York.

ANSWER.—In this case there is probably no relationship between the axillary folliculitis and the infected tonsils with the associated antrum, middle ear and mastoid infections. In the axilla it is necessary to differentiate a simple folliculitis from a folliculitis with an underlying lymphatic suppuration. The latter condition requires free drainage sometimes up to the roof of the axilla. The former should not be incised, excepting to puncture the individual postules when liquefaction necrosis is complete. The skin should be kept dry to prevent maceration, as this renders it susceptible to reinoculation and the establishment of new foci of suppuration. Alcohol (50 per cent) and dusting powders are worth while using. Excepting in diabetes or in individuals with high blood sugar, diet, medication, vaccines and all kindred methods of systemic treatment are of debatable value.

DEATH OF INFANT FROM CEREBRAL HEMORRHAGE DURING LABOR

To the Editor:—A woman was in labor for approximately thirty-six hours before delivery occurred. The child's heart beats were strong at the start; the condition of the mother was good, aside from some uterine inertia. At the beginning of the labor there was no engagement. The head was apparently the presenting part, and there was little dilatation. Ten hours later, little progress had been made. The heart sounds were still good. The pains were hard but irregular. The next day the position had apparently changed to a shoulder presentation. The heart sounds were not heard approximately thirty hours after the beginning of labor. There was slight dilatation, and seemingly a hand was presenting. The patient was anesthetized with gas and oxygen, manual dilation was done and a podalic version was performed, followed by rapid extraction of the fetus. The child was born dead. The child was well formed and well nourished, and the condition of the mother was good throughout the entire labor. At no time during the labor was the cord compressed, so far as we were able to determine. No morphine or other depressants were given. On artificial respiration we were able to expand the chest cavity. Autopsy was not obtainable. During the delivery there was no occasion to suspect asphyxia as the baby was delivered within two or three minutes. I signed the death certificate "cerebral hemorrhage" and I wish to inquire if my supposition in this case was correct. Please omit name.

M.D., California.

ANSWER.—The diagnosis of cerebral hemorrhage was most likely correct. Compression of the cord and the administration of morphine and other depressants are not necessary etiologic factors in the production of cerebral hemorrhage. The hemorrhage could have been caused by the strong uterine contractions that were present for a large part of the thirty (or thirty-six) hours of labor. Very forcible contractions of the uterus over a long period of time may occasionally produce cerebral hemorrhage in cases in which the occiput presents, but this is more likely to occur in cases of shoulder presentation. Since the fetal heart tones were not heard just before delivery, the child was most likely dead before the dilation of the cervix was begun. However, if the baby was alive, and this is possible, even if the heart tones could not be heard, the version and extraction might also have been a possible cause of the death of the child by cerebral hemorrhage.

USE OF HYDROCHLORIC ACID IN THERAPY

To the Editor:—I have read of the value of hydrochloric acid injections in infections, chronic cough and asthma. Please give your opinion of them, the amount given, percentage of strength and frequency. Is there any deleterious effect, and is there any possibility of abscess formation? Please omit name.

M.D., Kansas.

ANSWER.—Several authors report encouraging results in all types of infections by the use of 10 cc. of a 1:3,000 solution of hydrochloric acid-U. S. P. given hypodermically, after injection of a similar amount of a 1 per cent solution of procaine hydrochloride several times a week until the desired result is obtained. The authors believe that the effect of the injections is due to an artificial increase of the number of leukocytes by from 20 to 100 per cent or more, particularly of the polymorphonuclear variety. Such leukocytic stimulation leads to increased phagocytic action against microbes and to liberation of resistance-promoting substances. Success depends on maintenance of a leukocytosis. This treatment must be cautiously used; it may result in abscess if proper antisepsis is neglected. Otherwise harmful effects have not been reported. There may be some danger from aggravating a pulmonary tuberculosis. The hydrochloric acid injections are not specific, not a cureall, do not remove the cause, and are not always indicated; other treatment must not be neglected.

USE OF COMBINATION OF BARBITAL AND AMIDOPYRINE

To the Editor:—There are on the market a number of tablets and capsules containing a mixture of amidopyrine and some barbital derivative which seem quite efficient as analgesics and hypnotics. All such preparations to my knowledge are expensive proprietaries, and I should like your suggestion as to a combination which might in a measure approach the analgesic and hypnotic effects of morphine without being narcotic and obtainable at less cost. With this in view, I should be glad for your opinion of the following combinations:

(*a*)	Sodium bromide	3	grains
	Amidopyrine	3	grains
(*b*)	Barbital	2	grains
	Amidopyrine	3	grains
(*c*)	Barbital sodium	1	grain
	Amidopyrine	3½	grains
(*d*)	Acetanilid	1	grain
	Amidopyrine	3½	grains
(*e*)	Sodium salicylate	2	grains
	Amidopyrine	3	grains

Or I should be glad to have you suggest a combination. Please omit my name.

M.D., Iowa.

ANSWER.—There seems to be no reason to doubt that a mixture composed of one of the analgesic drugs, such as amidopyrine, acetylsalicylic acid, acetanilid or acetphenetidin, and a hypnotic drug of the barbital type is more effective in relieving pain than is either of the components alone.

This type of mixture was popularized apparently, if not originated, by von Noorden about 1911. He reported that a mixture containing 0.3 Gm. (5 grains) of barbital, 0.25 Gm. (4 grains) of acetphenetidin and from 0.0025 to 0.03 Gm. (1/20 to 1/2 grain) of codeine was equal in effect to 0.6 Gm. (10 grains) of barbital without the side action of the latter, but he did not present satisfactory evidence in support of that statement.

Shortly after the publication of von Noorden's paper, numerous proprietary mixtures more or less resembling the mixture proposed by von Noorden appeared with claims almost identical with those made by him. Later the emphasis was placed on their capacity for relieving pain, and at present there is a large number of proprietary remedies of this general type. Some of these consist of simple mixtures; in some it is claimed that the substances are loosely combined chemically. While manufacturers have attached much importance to the chemical combinations of the hypnotic and analgesic, laboratory experiments have failed to reveal any difference between the action of a simple mixture of barbital with amidopyrine and that of proprietary preparations in which they are said to be combined chemically.

There has been apparently no satisfactory clinical comparison of the pain-relieving power of any of these preparations with that of the simple analgesics, including acetanilid, acetphenetidin, acetylsalicylic acid, amidopyrine and antipyrine. There are several reasons for the want of satisfactory clinical studies of this character. In the first place severe pain, such as headache, is frequently relieved by a small dose of a simple analgesic, such as acetphenetidin, but even large doses often fail to relieve headache presenting apparently identical symptoms. In the second place, there is no exact measure of the intensity of pain which the clinician can apply; hence he is forced to rely on the statements of patients except in those cases in which he conducts experiments on himself, and obviously opportunities for such experiments are limited.

A patient who has lost sleep and is nervous and irritable complains of intense pain at one time, and on another occasion the same patient bears a similar pain with little complaint. In other words, there are so many factors concerned with pain and its relief that it is difficult to make accurate comparison of the analgesic properties of two substances which differ but little quantitatively.

Much has been made in the advertising of the claims of Buergi concerning the potentiation of action drugs having different seats of action, but, as already stated, no satisfactory evidence of potentiation in such mixtures has been presented.

It is impossible to say that any one of the five mixtures mentioned by our correspondent would relieve all types of pain equally well, but the mixture of barbital and amidopyrine is probably as useful as any of the expensive proprietary preparations of this type.

The action of the hypnotic may outlast that of the analgesic; hence they may be used separately, the analgesic being repeated more frequently than the hypnotic. On the basis of available evidence, the following procedure may be suggested:

Barbital, 0.2 Gm. (3 grains), and acetylsalicylic acid or amidopyrine, 0.2 Gm. (3 grains), are given at once. They should not be given more often than once in eight hours. Should the pain continue or reappear after three hours, 0.2 Gm. (3 grains) of acetylsalicylic acid or amidopyrine may be given alone. The effect of a single dose of amidopyrine is said to last twenty-four hours and the dose should not be repeated frequently. Acetylsalicylic acid may be given in doses of 0.3 Gm. (5 grains) at intervals of four hours should it be necessary to relieve pain.

Frequent repetition of barbital or one of its derivatives with the analgesic may cause drowsiness in the daytime. A simple analgesic—acetylsalicylic acid or amidopyrine—may be used when pain reappears in the intervals. Certain forms of intense pain require an occasional dose of morphine, but one can relieve intense pain with less morphine if one uses the analgesic mixture at the same time or on the reappearance of pain.

ARTHRITIS WITH TACHYCARDIA AND HYPERTENSION

To the Editor:—I write to you for information in regard to a man, aged 66, who is leading a quiet life and is careful of his diet. Arthritis developed some years ago, as a result of an injury to the knees. Crepitation is always present and at times marked. Thorough examination discloses no evidence of albumin, glycosuria, syphilis, tuberculosis, or any blood dyscrasia. Tachycardia and hypertension to 180 systolic have developed. Is it not reasonable to suppose in this case that they are caused by the arthritis? If you can indorse this opinion, kindly give me data.

M.D., St. Louis.

ANSWER.—From the description of this case, it seems exceedingly doubtful whether a traumatic arthritis can by itself produce tachycardia and hypertension. It would seem wise to investigate the kidney function and heart function, to make sure that there is no underlying renal or cardiac pathologic change present. Tachycardia also calls for a study of the thyroid, for it is well known that many cases of increased thyroid activity are masked by symptoms such as are described.

PSORIASIS—CREEPING ERUPTION

To the Editor:—I have a patient who has suffered from psoriasis for several years. She states that during the fig season when she eats figs directly from a tree the psoriasis disappears. Dried figs do not seem to have any beneficial effect. Is this a coincidence or is there any basis for improvement? Please give latest treatment for psoriasis. Are there any reports on the use of tobacco poultice for creeping eruption? What is considered the most satisfactory treatment for this condition?

J. A. SPEIGHT, M.D., Rocky Mount, N. C.

ANSWER.—There is no reason to believe that the eating of fresh figs has anything to do with the improvement in a case of psoriasis. There is no new late treatment for psoriasis. The treatments generally followed are those given in any of the standard textbooks. There are no reports in the scientific literature of the use of tobacco poultices for creeping eruptions, as far as we know. We do not see why there should be any. Dr. Kirby-Smith of Jacksonville, Fla., who has the largest experience of any one in this country on creeping eruptions, advises that the lesions be treated as follows: Isolated lesions are curable with the ethyl chloride spray; they should be frozen for two minutes. In multiple creeping infections of the palms and soles, the distal ends of the active lesions are frozen with the ethyl chloride spray; then the area is painted with tincture of iodine, followed with 10 per cent ammoniated mercury ointment to which 6 per cent salicylic acid has been added. The ointment is applied with a "canton flannel" cloth strapped to the area. This is removed the following day. This treatment is an heroic one. In early stages of multiple lesions of creeping eruption, ethyl acetate applied with cotton pads and covered with a rubber cloth envelop to prevent evaporation has given favorable results. A number of prompt cures have followed through the use of an erythema dose of the ultraviolet ray. Each treatment is followed by a thorough application of ethyl acetate collodion containing salicylic acid. Cures are noted following exfoliation of the epidermis.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALASKA: Juneau, Sept. 3, 1929. Sec., Dr. Harry C. Devighne, Juneau, Alaska.

HAWAII: October, 1929. Sec., Dr. James A. Morgan, Room 48, Young Building, Honolulu, Hawaii.

IDAHO: Boise, Oct. 1, 1929. Commissioner of Law Enforcement, Hon. F. E. Lukens, State House, Boise, Idaho.

MONTANA: Helena, Oct. 1, 1929. Sec., Dr. S. A. Cooney, Board of Medical Examiners, Power Building, Helena, Mont.

NATIONAL BOARD OF MEDICAL EXAMINERS: Examination to be held in all class A medical schools, Sept. 16-18, 1929. Executive Secretary, Everett S. Elwood, 225 South Fifteenth Street, Philadelphia, Pa.

NEW HAMPSHIRE: Concord, Sept. 12-13, 1929. Sec., Dr. Charles Duncan, Concord, N. H.

OKLAHOMA: Oklahoma City, Sept. 10-11, 1929. Sec., Dr. J. M. Byrum, Shawnee, Okla.

PORTO RICO: San Juan, Sept. 3, 1929. Sec., Dr. D. Biascoechea, Box 804, San Juan, Porto Rico.

Oklahoma June Examination

Dr. J. M. Byrum, secretary of the Oklahoma State Board of Medical Examiners, reports the written examination held at Oklahoma City, June 11-12, 1929. The examination covered 12 subjects and included 120 questions. An average of 75 per cent was required to pass. Forty-three candidates were examined and passed. Nine physicians were licensed through reciprocity with other states and two by endorsement of credentials. Two physicians were granted duplicate licenses. The following colleges were represented:

College	PASSED	Year Grad.	Number Licensed
University of Louisville School of Medicine		(1928)	1
Johns Hopkins University School of Medicine		(1929)	2
St. Louis University School of Medicine		(1927)	1
Creighton University School of Medicine		(1929)	1
University of Nebraska College of Medicine		(1929)	1
University of Oklahoma School of Medicine		(1929)	37

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Arkansas School of Medicine		(1911)	Arkansas
Georgetown University School of Medicine		(1865)	Missouri
Georgia College of Eclectic Med. and Surg., Atlanta		(1908)	Georgia
Indiana University School of Medicine		(1926)	Indiana
State University of Iowa College of Medicine		(1925)	Iowa
St. Louis University School of Medicine		(1926)	Missouri
Washington University School of Medicine		(1928)	Missouri
Jefferson Medical College of Philadelphia		(1921)	Kansas
University of the South Medical Department		(1909)	Texas

College	ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement with
Rush Medical College		(1928)	N. B. M. Ex.
Queen's University Faculty of Medicine		(1905)	N. B. M. Ex.

Mississippi June Examination

Mr. Felix J. Underwood, secretary of the Georgia Board of Medical Examiners, reports the written examination held at Jackson, June 25-26, 1929. The examination covered 12 subjects and included 96 questions. An average of 75 per cent was required to pass. Twenty-seven candidates were examined, all of whom passed. Fifteen candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Emory University School of Medicine, Atlanta		(1929)	87.9
Northwestern University Medical School		(1929)	85.4*
University of Illinois College of Medicine		(1929)	89*
University of Louisville School of Medicine		(1929)	87.5
Tulane University of Louisiana School of Medicine		(1928) (1929)	87, 87.6, 88.5, 90.2, 90.2, 91, 92
University of Nebraska College of Medicine		(1928)	90
Columbia University College of Phys. and Surgs.		(1929)	89.5
University of Oklahoma School of Medicine		(1929)	84.8
Jefferson Medical College of Philadelphia		(1929)	81, 84.1, 86
University of Pennsylvania School of Med.		(1928) (1929)	87.5, 89
University of Tennessee College of Medicine		(1928) (1929)	86.3, 88.5, 87, 87.2, 89.2, 90.5
University of Texas School of Medicine		(1929)	87.9
University of Virginia Department of Medicine		(1928)	88.2
University of Arkansas School of Medicine		(1912)	Arkansas
Emory University School of Medicine		(1923)	Georgia
Tulane Univ. of Louisiana School of Med.		(1926-2)	Louisiana, Tennessee
Beaumont Hospital Medical College, St. Louis		(1893)	Missouri

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University of Nebraska College of Medicine	(1926)	Nebraska
Medical College of the State of South Carolina	(1921)	S. Carolina
Chattanooga Medical College	(1903)	Illinois
Meharry Medical College	(1914)	Tennessee, (1916) Missouri
University of Tennessee College of Medicine	(1917) (1924), (1927)	Arkansas Tennessee
Vanderbilt University School of Medicine	(1927)	Tennessee
Medical College of Virginia	(1928)	Virginia

Kentucky June Examination

Dr. A. T. McCormack, secretary of the Kentucky State Board of Health, reports the written examination held at Louisville, June 11-13, 1929. The examination covered 11 subjects and included 110 questions. An average of 70 per cent was required to pass. Fifty-nine candidates were examined, all of whom passed. Two candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Northwestern University Medical School		(1929)	84*
University of Louisville School of Medicine		(1929)	80, 82, 84, 84, 84, 84, 84, 84, 85, 85, 85, 85, 85, 85, 86, 86, 86, 86, 86, 86, 87, 87, 87, 88, 88, 88, 88, 88, 88, 88, 88, 89, 89, 89, 89, 89, 89, 90, 90, 90, 90, 91, 91, 91, 91, 91, 92, 93
Eclectic Medical College, Cincinnati		(1929)	78, 82, 85, 86
University of Cincinnati College of Medicine		(1929)	83,* 86,* 89*

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Tennessee College of Medicine		(1927)	Tennessee
Medical College of Virginia		(1928)	W. Virginia

* These candidates have received their M.B. degrees and will receive their M.D. degrees on completion of one year's internship in a hospital.

ADDITIONAL HOSPITALS AND LABORATORIES APPROVED

The Council on Medical Education and Hospitals of the American Medical Association at the Portland session gave its approval to additional hospitals and clinical laboratories, as follows:

HOSPITALS APPROVED FOR INTERN TRAINING

Santa Fe Coast Lines Hospital, Los Angeles.
Santa Barbara General Hospital, Santa Barbara, Calif.
St. Vincent's Hospital, Jacksonville, Fla.
St. Catherine's Hospital, East Chicago, Ind.
Memorial Hospital, Albany, N. Y.
Beth David Hospital, New York.
Sydenham Hospital, New York.
U. S. Marine Hospital, Staten Island, N. Y.
General Hospital of Syracuse, Syracuse, N. Y.
Deaconess Hospital, Cincinnati.
Elyria Memorial Hospital, Elyria, Ohio.
St. John's Hospital, Tulsa, Okla.
Methodist Hospital, Memphis, Tenn.
Hermann Hospital, Houston, Texas.
Pierce County Hospital, Tacoma, Wash.
Mercy Hospital, Janesville, Wis.

HOSPITALS APPROVED FOR RESIDENCIES IN SPECIALTIES

Hospital of the Good Samaritan, Los Angeles.
Henrietta Egleston Hospital for Children, Atlanta, Ga.
Augustana Hospital, Chicago.
Sunnyside Sanatorium, Oaklandon, Ind.
Baltimore City Hospitals, Psychopathic Division, Baltimore.
Sinai Hospital of Baltimore, Baltimore.
Sheppard and Enoch Pratt Hospital, Towson, Md.
Taunton State Hospital, Taunton, Mass.
St. Louis Maternity Hospital, St. Louis.
Newark Beth Israel Hospital, Newark, N. J.
Methodist Episcopal Hospital, Brooklyn.
Irvington House, Irvington, N. Y.
Kings Park State Hospital, Kings Park, N. Y.
Grasslands Hospital, Valhalla, N. Y.
Women's and Children's Hospital, Toledo, Ohio.
Mercy Hospital, Pittsburgh.
Medical College of Virginia, Hospital Division, Richmond, Va.
Children's Orthopedic Hospital, Seattle.

PATHOLOGISTS CONDUCTING APPROVED CLINICAL LABORATORIES

W. W. Watkins, M.D., and H. P. Mills, M.D., directors, Pathological Laboratory, Phoenix, Ariz.
Robert M. Fulwider, M.D., director, Clinical Laboratory, Denver.
J. D. Allen, M.D., director, Louisville Research Laboratory, Louisville, Ky.
Joseph Kopecky, M.D., director, Clinical Pathological Laboratory, Galveston, Texas.

Book Notices

DER INTESTINALE INFANTILISMUS UND ÄHNLICHE FORMEN DER CHRONISCHEN VERDAUUNGSSTÖRUNG: Ihre Behandlung mit Früchten und Gemüsen. Von Priv.-Doz. Dr. G. Fanconi, Oberarzt der Klinik. Paper. Price, 11 marks. Pp. 202, with illustrations. Berlin: S. Karger, 1928.

This monograph on Herter's infantilism, or celiac disease, is based on a careful and comprehensive study of eighty cases in Feer's clinic under observation since 1911. An introductory description of the celiac syndrome is presented, which consists of large slimy stools, distended abdomen, hydrolability, inhibition of growth, osteopathy, hypotonia, anemia and metabolic changes. The author gives an instructive diagnostic classification of chronic dyspepsias in childhood, including the primary and secondary forms of celiac disease. The prominent symptoms of this condition are then described, with clinical cases, photographs and charts. The author notes that the large foul, slimy stools, consisting of food residue plus the excretory products of the inflamed colon, are the main symptoms. The large abdomen is explained by the fact that peristalsis in the transverse colon is slowed, as was demonstrated roentgenologically by Friese and Jahr. The hydrolability is due to disturbance in the salt metabolism. The hypophosphatemia explains the inhibited growth, the osteoporosis and the muscular hypotonia. The author notes that inhibition of growth is a never failing symptom of celiac disease. The bones are poor in calcium and there is a tendency to spontaneous fracture. He observes that there is a close morphologic and metabolic relationship between rickets and celiac disease. Under the influence of the metabolic disturbances, bony changes develop which cannot be distinguished from rickets roentgenographically but which nevertheless do not react to vitamin D. The demineralization also explains the defective muscular tonus that occurs in this disease. Various types of anemia associated with celiac disease are described, ranging from a secondary form of the chlorotic type to a pseudopernicious anemia with leukopenia. The anemia and leukopenia seemed to indicate diminished activity of the bone marrow. The description of the metabolic processes as affected by celiac disease is illuminating as regards the basic biochemical disturbance. There is an incomplete intermediate oxidation because of the diminished general metabolism. The author notes further that there is a demineralization due to deficient absorption from the intestine, which leads to a disturbance in the buffer mechanism and a greater tendency to acidosis. As a result of the demineralization there is a hypocalcemia, hypophosphatemia and hypo-albuminemia.

Fanconi presents an interesting description of the etiologic factors involved, wherein he places great emphasis on constitutional deficiency as a predisposing factor and points out the characteristic type of patients (blond hair, blue sclera, brown pigmentation of skin). As secondary etiologic factors, alimentary injuries, infection, and poor hygienic and home care are mentioned. Complications, such as scurvy, hypothrombinemia, tetany and rickets, are described. The author records seventeen deaths out of fifty-four cases in the hospital and 46 per cent cure. The deaths were due to purpura fulminans, three; scurvy, one; inanition, five; intoxication, three, and infection, five. Necropsy did not demonstrate any morphologic cause. All the conditions were secondary, as a result of disturbed intermediary metabolism and of anemia.

Fanconi discusses the chief principles in the therapy of celiac disease and places dietary management first in importance. Emphasis is placed on the use of raw and cooked vegetables and fruits, which help combat the tendency to acidosis. Acid-producing food, as meats, fats, eggs and flour, are restricted. The vitamins in the fruit and vegetable diet are important therapeutic agents. Under medicinal agents, calcium carbonate and insulin were of value. The author concludes with a bibliography and a supplement of roentgenograms depicting the various types of bone changes encountered and some gastrointestinal films showing the condition of the bowel. Fanconi has presented in an attractive manner the available data on this chapter in pediatrics. His dietary management varies considerably from that which has been in vogue in American pediatric practice in the last decade.

HANDBOOK OF ANÆSTHETICS. By J. Stuart Ross, M.B., Ch.B., F.R.C.S.E., and H. P. Fairlie, M.D., Anæsthetist to the Western Infirmary and the Royal Hospital for Sick Children, Glasgow. With an introduction by the late Hy. Alexis Thomson. Third edition. Cloth. Price, $3.25. Pp. 339, with 66 illustrations. New York: William Wood & Company, 1929.

This little handbook has gone into its third edition within ten years, which indicates fortunately a growing interest in anesthesia by the British people. In size and thoroughness of treatment it is quite inferior to Gwathmey's collaborative work "Anesthesia." The new and short chapter on ethylene-oxygen anesthesia is incomplete. It accounts solely for the limited experience of the writer (Dr. Fairlie). Not a single bibliographic reference appears in the text. Solely as a textbook for students of practical anesthesia, it is adequate.

DIE FRAGE NACH DEM URSPRUNG DER ENDOMETRIOIDEN HETEROTOPIEN BEIM GESCHLECHTSREIFEN WEIBE. Von Dr. Konrad Heim, Privatdozent für Geburtshilfe und Gynäkologie. Paper. Price, 8 marks. Pp. 110, with 30 illustrations. Berlin: S. Karger, 1929.

This pamphlet deals with a clinical and pathologic problem that has attracted considerable attention in recent years by gynecologists. The introductory chapter is devoted to an exact definition of the concept of this anomaly. As an interesting feature is mentioned the fact that there is no exact analogue in pathology to this condition. There are quoted all the localizations that have been observed and described. The various generic theories are presented and critically discussed. In preference to Sampson's theory of implantation and Halban's theory of hystero-adenosis metastatis, the sero-epithelial hypothesis is considered most acceptable. The macroscopic and microscopic diagnostic characteristics are given in detail. Emphasis is placed on the point that sexual maturity is an indispensable corollary of this pathologic phenomenon. There was never found an endometriosis previous to the first menstruation. This is in harmony with the observation of a functional parallelism between the uterine mucosa and the endometriotic heterotopies. It is asserted that the transportation of particles of the uterine mucosa with subsequent implantation must be considered a rare occurrence. The usual uterine interventions, such as irrigation, dilation, tamponade and patency tests, have no practical bearing on the genesis of heterotopic endometriosis. The authors' contentions are supported by reports on pertinent clinical and experimental research. This publication probably presents the most complete exposition available of this topic.

THE NEW-BORN INFANT: A Manual of Obstetrical Pediatrics. By Emerson L. Stone, M.D., Assistant Clinical Professor of Obstetrics and Gynecology, School of Medicine, Yale University. Cloth. Price, $2 net. Pp. 183. Philadelphia: Lea & Febiger, 1929.

This work is written from the standpoint of the obstetrician, who is interested not only in the problems offered by the mother but in those of the newly born infant. The immediate care of the new-born, as well as the requirements of the first days of life, is given full consideration. In this it serves a much neglected field. Further chapters on breast feeding, modified feeding, dietary disorders, birth injuries, infectious disorders of special systems and the premature infant are covered. The whole work is handled in a practical manner.

LES OTITES MOYENNES. Par Georges Portmann, professeur de clinique oto-rhino-laryngologique à l'Université de Bordeaux, et Karl Kistler. Paper. Price, 70 francs. Pp. 212, with 77 illustrations. Paris: Masson & Cie, 1929.

In the introduction to this book, the authors call attention to the fact that it was Bezold who first insisted on a scientific study of diseases of the ear, including functional testing and postmortem examination, thus supplementing the work of Troeltsch and Politzer. The monograph is systematically arranged, and the authors are precise and careful in their terminology. They rightly object to the word "otitis" applied to such conditions as tubal obstructions, in which inflammatory reaction is not present. The noninflammatory conditions are first discussed, and later the inflammatory and suppurative ones involving the middle ear. Each clinical subject is taken up in a logical and systematic manner. One can hardly agree with the statement made under the heading of noninflammatory tubal obstruction that the patient often cannot hear the whispered voice at a distance of more than 5 or 10 Cm.; such a severe impairment of hearing is almost always noted only in cases in which there is auditory nerve degeneration. Middle ear conditions rarely produce a reduction in hearing for the whispered voice as low as 0.5 meter. Although the book is a rather small one, it is wonderfully illustrated both in black and white and in colors. The type is large and distinct. The book makes delightful reading as the style is clear and the work logically arranged; it should prove of great value to all students of otology.

AN INDEX OF SYMPTOMATOLOGY. By Various Writers. Edited by H. Letheby Tidy, M.A., M.D., F.R.C.P., Assistant Physician, St. Thomas's Hospital. Cloth. Price, $12. Pp. 710, with 130 illustrations. New York: William Wood & Company, 1929.

This is another one of the many short cuts to diagnosis that are appearing from time to time. The articles are written by men well versed in their respective departments. The great difficulty, however, rests in the fact that well defined clinical entities are fairly easily recognized. But the atypical cases are the baffling ones; hence the defect in most of the works of this kind. Only a few examples of this deficiency can be noted here. Nothing is said about the protein tests on asthma. Radiography "may" be used in vesical calculus. The relationship of bronchiectasis to bronchitis is not mentioned, although the author does mention widening of the bronchioles without any further comment. One wonders whether chlorosis should be given much space. Is it not quite possible that many of the conditions formerly called chlorosis have with our better diagnostic facilities been separated into various groups, as mild hyperthyroidism, endocarditis or early tuberculosis? This idea is, of course, not new. The subject of cholecystis is barely touched on, although it is the commonest gastro-intestinal ailment. The articles on peptic ulcer are poor. Cyclic vomiting is probably not a clinical entity. One cannot agree that a positive agglutination test does not appear early in acute specific dysentery. With its aid an early diagnosis can be made and Flexner's serum administered with favorable results. It is manifestly impossible to point out the many instances in which valuable points on diagnosis are either not stressed or even mentioned. The general practitioner for whom this is written needs many of the aids that should be mentioned. The chapters dealing with neurologic subjects seem to be the most complete.

ANATOMÍA DE LOS CENTROS NERVIOSOS. Por los Doctores R. López Prieto, catedrático de anatomia de la Facultad de Medicina de Valladolid, y. G. Garcia Urdiales, profesor auxiliar de anatomia de la Facultad de Medicina de Valladolid. Cloth. Pp. 410, with 145 illustrations. Valladolid: Florencio de Lara, 1929.

This book presents, simply and clearly, our knowledge of the central nervous system. Because of its clearness and conciseness, it is suitable for those who wish to acquaint themselves with the neurologic Spanish terminology. The illustrations are well chosen and remarkably illustrative, but the book is rather elementary and lacks specific bibliographic references.

THE NURSE IN PUBLIC HEALTH. By Mary Beard, R.N., Assistant Director of the Division of Medical Education of the Rockefeller Foundation. Cloth. Price, $3.50. Pp. 217. New York: Harper & Brothers, 1929.

The author is the assistant director of the division of medical education of the Rockefeller Foundation. She has spent twenty-five years in public health nursing. Her points of view are: 1. The demand for the public health nurse has arisen out of the development of preventive medicine. 2. The function of the public health nurse is to teach members of the family how to care for the sick under the direction of the family physician and prevent illness among themselves. The practical application of these ideals as carried out by the Frontier Nursing Service in the mountains of Kentucky and in the mountainous regions of the Southern states, and as they are being applied by some of the health demonstrations, is described. The Boston Instructive District Nursing Association is discussed in more detail. The author believes that Boston has one of the most efficient nursing organizations. Public health nursing in the countries of Europe, with particular attention to maternal care, is the subject of other chapters. The different attitude and training of the midwife in Europe from that in the United States is well brought out. There are said to be more than 50,000 mid-

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wives in the United States. The practice of midwifery in this country is uncontrolled except in a few states. Ours is the only country in which that is true. The public health nurse requires special training in pediatrics and obstetrics, and should have a good idea of what is being done in the general field of medicine. The so-called nursing school, the author says, is not a school. Students spend so much of their time in the wards in routine duties that they have little opportunity for considering the nursing needs of their patients. An interesting part of this book is the history of public health nursing. The first industrial nurse was employed by the Vermont Marble Works in 1905. The first mental hygiene committee was organized in Connecticut in 1905. The Metropolitan Life Insurance Company first offered home nursing to its policyholders in 1909, and in the next year Columbia University established a course of public health nursing. The American Red Cross established a rural nursing service in 1912, and in that year the United States Children's Bureau and the National Organization for Public Health Nursing were established.

HANDBUCH DER THEORETISCHEN UND KLINISCHEN (ALLGEMEINEN UND SPEZIELLEN) RÖNTGENKUNDE. Herausgegeben von Guido Holzknecht. Band I: Die Röntgendiagnostik der intrathorakalen Tumoren und ihre Differential-Diagnose. Von Robert Lenk, Dozent für medizinische Röntgenologie an der Universität Wien. Paper. Price, 56 marks. Pp. 457, with 217 illustrations. Vienna: Julius Springer, 1929.

This is based on the author's extensive observations of intrathoracic tumors in the Institute of Kienböck and Holzknecht and on a study of the literature. In the preface the author states that his object has been not only to make this material available in book form but also to emphasize the importance of a detailed systematic study of the roentgen shadows with especial reference to position, size, shape, density, structure, contour and influence on neighboring organs, and degree of motility and mobility. He points out the necessity of such detailed study in the differential diagnosis of intrathoracic tumors and other pathologic processes producing more or less similar shadows, and in the differentiation between the different types of tumors. A chapter is devoted to the technic of roentgenography, including special diagnostic methods. The various types of tumors of the lung, pleura and mediastinum, including tumors of the mediastinal glands, thymus, heart and pericardium, and intrathoracic goiter, are described as to types of pathologic anatomy, clinical manifestations, roentgen diagnosis and complications. Illustrative cases are reported and an extensive bibliography is appended. This comprehensive and authoritative contribution on the roentgen diagnosis of intrathoracic tumors is heartily recommended to those interested in the subject.

EDEMA AND ITS TREATMENT. By Herman Elwyn, M.D., Assistant Visiting Physician Gouverneur Hospital, New York. Cloth. Price, $2.50. Pp. 182, with 3 illustrations. New York: Macmillan Company, 1929.

According to the author, edema results from a disturbance in the balance between the water intake and the rate of movement of the water from the tissues to the blood stream. The important factor is a diminution of the rate of water movement from the tissues. This slowing may result: (1) from an adaptation on the part of the entire mechanism for water exchange for the purpose of maintaining the constancy of the water part of the internal milieu, especially the constancy of the water content and the volume of the blood when this is threatened; (2) from a change in the intensity of function of the water-regulating center, and (3) in local edema, from a change in the local peripheral part of the mechanism for water exchange. This adaptation involves changes in the constellation of the electrolytes in the tissues through which the water passes. The author supports this hypothesis by numerous references to the literature of water regulation and edema. He discusses the water content of the body, and the cell; the water depots; the rôle of the kidneys, liver and spleen in water exchange; and changes in the blood after the intake of water. The regulation of water exchange is discussed in relation to the influence of electrolytes and nerves, central regulation, and the influence of hormones. An analysis is made of the formation of edema. He then takes up edema of cardiac failure, glomerulonephritis, lipoid nephrosis, chronic undernutrition, and edemas of obscure origin. All of these are considered on the basis of the author's hypothesis. There is also a chapter on the treatment of edema. References to the literature are numerous and well presented, although seemingly somewhat selected in support of the author's point of view. The style is clear, concise and interesting. This book, if critically read, should be of value to all who are interested in edema. It is useful in directing attention to the inadequacy of explaining disturbed biologic processes solely on isolated or local physical or chemical changes without proper consideration of the likelihood of participation of the organism as a whole.

FARBIGE, INSOBESONDERE GRÜNE GLÄSER ALS AUGENSCHUTZ. Ein Rückblick und Ausblick. Von Prof. Dr. Albert von Pflugk, Augenarzt in Dresden. Boards. Price, 8 marks. Pp. 23, with 9 illustrations. Berlin: S. Karger, 1929.

This monograph deals with protective colored glasses from a more or less purely historical standpoint. Starting with the green glasses that were given to the Swedish king Gustav Adolphus in 1632, the most prominent types of colored protective glasses are described and in many instances depicted in colors. When available, the refractive index and power of the glass was measured, in part by Carl Zeiss of Jena. The book is beautifully made and is well illustrated. It belongs in the library of the student and of the ophthalmologist whose hobby is ophthalmology.

A MANUAL OF EXTERNAL PARASITES. By Henry Ellsworth Ewing, of United States Bureau of Entomology. Cloth. Price, $4.50. Pp. 225, with 96 illustrations. Springfield, Illinois: Charles C. Thomas, 1929.

This is a useful book for sanitarians, veterinarians, parasitologists and biologists. Five important groups of external parasites—mites, ticks, biting lice, sucking lice and fleas—are minutely described as to external anatomy, life history and habits, classification and natural relationships. The illustrations, keys and tables will prove of great assistance to investigators in identifying species and genera. There are also brief practical control suggestions. In the preparation of the work, Dr. Ewing has made use of his own large collection of ectoparasites as well as that found in the National Museum in Washington. The author's zeal and industry in undertaking this unique work are highly commendable.

DIE STÖRUNGEN DES BEWUSSTSEINS: Klinisch-diagnostische Studien für Ärzte und Studierende. Von Prof. M. Rosenfeld. Direktor der Psychiatrischen und Nervenklinik in Rostock. Paper. Price, 16 marks. Pp. 247. Leipzig: Georg Thieme, 1929.

Disturbances of consciousness are found in a great variety of conditions, including functional and organic disturbances of the brain and many general conditions. These are all separately, thoroughly and accurately described with excellent differential diagnostic leads. The bibliography is excellent and the index adequate. This is a convenient monograph for quick reference concerning the most difficult of all states to analyze—unconsciousness.

PRINCIPLES AND PRACTICE OF MINOR SURGERY: A Textbook for Students and Practitioners. By Edward Milton Foote, A.M., M.D., Visiting Surgeon, St. Joseph's Hospital, and Edward Meakin Livingston, B.Sc., M.D., Assistant Visiting Surgeon, Bellevue Hospital. Sixth edition. Cloth. Price, $10. Pp. 787, with 420 illustrations. New York: D. Appleton & Company, 1929.

This may be used as a textbook for medical students or as a reference book for general practitioners and young surgeons. In its present form it consists of three parts, devoted to surgical technic, surgical processes and localized surgical treatment. The section on technic contains a wealth of practical information which every physician should know. Such topics as equipment, use of instruments, sutures, knots, principles and practice of asepsis, dressings, bandaging and the use of local and regional anesthesia are presented. In the second section, surgical processes are discussed in a general way, while in the third section, the regional presentation of surgical conditions helps one to visualize the problems of the part involved. An error was noted on page 201, figure 135, which is described as syphilis: condyloma acuminatum. The subject is presented in an interesting way. This edition has been completely revised, many sections having been rewritten, bringing this important phase of surgical literature down to date. The book is well written and illustrated.

DIE KRANKHEITEN DES HERZENS UND DER GEFÄSSE. Von Dr. Ernst Edens, a. o. Professor an der Universität München. Paper. Price, 66 marks. Pp. 1057, with 239 illustrations. Berlin: Julius Springer, 1929.

Edens has written a monumental and encyclopedic book on heart disease—a text probably more extensive than any of the many existing treatises on the subject. To a vast fund of knowledge he has brought a critical, sane evaluation of accepted views and beliefs, and likewise, at times, a human and humorous attitude to debatable subjects. The book is complete in every sense, including nearly 250 pages of references to cardiac literature historical and current. In addition to the usual chapters on the anatomy, physiology, pathology and treatment of diseases of the heart, Edens writes delightfully on chronic heart failure, tuberculosis and actinomycosis of the heart, neuroses of the heart and blood vessels, tumors of the heart, the heart in relation to malnutrition, obesity, age, physique, and diseases of the thyroid and the suprarenal. The book opens with a good chapter on the history of heart disease from the times of Hippocrates, followed by a clear, succinct discussion of the embryology of the heart and blood vessels. The chapter on cardiodynamics opens with the blunt, generally accepted statement "Das Herz ist eine Pumpe." Endocarditis is divided into endocarditis simplex ("bis jetzt nur als pathologish anatomisches Krankheitsbild bekannt"), and endocarditis rheumatica, associated with acute rheumatic fever, and following such infections as sore throat, measles, scarlet fever, diphtheria, pneumonia, gonorrhea and influenza, a rather broader concept than is usually held in this country. Reference to cases of endocarditis rheumatica healing without demonstrable valve lesions is illuminating, as well as the reference to Gerhardt's series of cases from the pathologic institute of Würzburg, in which approximately a third of the cases coming to necropsy showed evidence of endocarditic changes, the results of previous inflammatory processes. The chapter on parietal endocarditis without involvement of the valves, suggested clinically by faintness of the first tones, weakness and absence of the apex beat, and signs of cardiac failure associated with left ventricular increase, is interesting and suggestive. In the chapter on chronic heart failure, the discussion on conditions in the gastro-intestinal tract are valuable: "Hydrochloric acid secretion is usually not disturbed, gastric motility is normal, while the intestine often shows changes; protein and carbohydrates are normally taken care of, while fat absorption on the contrary is diminished; the frequently found and often greatly disturbing meteorism according to A. Schmidt is due to deficient gas adsorption."

ALLEN'S COMMERCIAL ORGANIC ANALYSIS: A Treatise on the Properties, Modes of Analysis, and Proximate Analytical Examination of the Various Organic Chemicals and Products Employed in the Arts, Manufactures, Medicine, Etc., with Concise Methods for the Detection and Estimation of Their Impurities, Adulterations and Products of Decomposition. Volume VII: The Vegetable Alakaloids. By the Editor, C. Ainsworth Mitchell, M.A., F.I.C., and the following Contributors: F. H. Carr, Oliver Chick, Norman Evers, J. J. Fox, T. A. Henry, P. J. Sageman, T. M. Sharpe, F. O. Taylor, R. W. Tonkin and R. Whymper. Fifth edition. Cloth. Price, $7.50. Pp. 869, with illustrations. Philadelphia: P. Blakiston's Son & Company, 1929.

This volume, which for a generation has occupied an important place in pharmaceutic and manufacturing chemists' libraries, has undergone a fifth revision. The previous revision was Anglo-American; consequently, the work has been a potential influence on the development of alkaloidal chemistry in this country. It is therefore regrettable that in the present revision only one American appears in the list of contributors, particularly when much of the recent additions to the text has been based on American sources. The scope of the book is broad. The introductory section, which gives a general outline of information relating to the subject of alkaloids, is followed by a comprehensive, systematic description of the individual alkaloids other than those which are of commercial importance in connection with food or drugs. These have been arranged in alphabetical order of the various plant sources, while separate sections are devoted to each of the more important alkaloids or groups of alkaloids. A short bibliography of standard works is given at the end of each section. The analytic procedures described in the book are well chosen and should lend valuable aid to those engaged in drug control and toxicologic investigations. The authors are to be commended, as the material is on the whole well chosen and up to date, maintaining the high character of the previous editions. The printing is good. The book can be heartily recommended to those engaged in manufacturing pharmacy, food and drug analysis, toxicologic and medicolegal procedures.

Miscellany

INQUIRY ON LAWS AND REGULATIONS IN EUROPE PERTAINING TO THE PHYSICAL QUALIFICATIONS OF AUTOMOBILE DRIVERS

In foreign letters appearing in THE JOURNAL, attention has been called on several occasions to the investigations of Professor Weekers and to the efforts he has put forth to secure for Belgium the creation of laws regulating the qualifications of automobile drivers. In this connection, he has recently published an interesting résumé on the results of an inquiry instituted by the Association professionnelle internationale des médecins. Replies to a questionnaire were received from Germany, Bulgaria, Denmark, Danzig, Esthonia, France, Great Britain, Netherlands, Hungary, Latvia, the Grand Duchy of Luxemburg, Norway, Poland, Sweden, Switzerland and Jugoslavia. In these sixteen countries a medical certificate is required for the securing of a license to drive. In France and Great Britain, the medical examination is compulsory only for the drivers of public vehicles. In some countries, the regulations in force are of recent date (1928). In most of these countries the medical examination of drivers must be repeated at regular intervals, after one, two or five years, as the case may be. The following paragraphs give a general outline of the regulations in force in the various countries:

Germany: The medical examination is compulsory for all drivers of automobiles and for motorcyclists. The examination is given by a physician of the government. The instructions that he must follow in the course of the examination are these:

I. In general, only persons who appear to be well and strong, and who have a normal bodily constitution and, particularly, adequate vision and hearing, are to be considered as in fit condition to drive automotive vehicles.

The bodily constitution and the mental state of the applicant should be commensurate with the demands made on the activity of a driver of an automobile; there should be no indications that any form of weakness is likely to supervene at an early date. If there is any doubt in this regard, the applicant is to be considered, until further notice, as unfit and must submit to repeated examinations (if necessary by specialists), until his condition leaves no room for doubt.

II. These are the points to which close attention must be given:

1. The head and the trunk must be free in their movements, so that the driver may be able to look to either side or behind. The trunk should be sufficiently mobile to permit the driver to bend over readily so as to enable him to call into immediate action, while driving, the adjusting mechanisms placed in front of him. Likewise, the upper and the lower limbs should have sufficient mobility to permit the driver to operate the various hand and foot levers. In case of stiffness of any fingers, or loss of a finger or any portion thereof, the examiner must ascertain, in each particular case, whether or not the applicant is able to hold and to turn the steering wheel with each hand separately. In this connection, it may be recalled that the steering wheel is often exposed to sudden and intense rotatory movements as a result of rough places in the road; each hand should therefore be capable of overcoming such obstacles. As the legs and feet have to operate ordinarily two or three levers by pressing down on them, they should be free from any impediment in the movement of their joints.

2. Persons are not fit to drive an automobile of any kind unless their visual acuity for one eye (with or without correction) is equal to ½, and for the other eye to ⅙, and then only in case the visual fields are normal and the examination reveals no disease known to be a cause of weakened eyesight.

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Automotive vehicles belonging to class 3a may be driven with safety by persons who have a visual acuity in one eye, with or without correction, of 1/5; or if the sight is completely gone in one eye and this condition has existed for at least two years, they may drive with safety if the other eye has an acuity of at least 2/3 without correction. In the latter case, the applicant must furnish a certificate from an ophthalmologist confirming the integrity of the eyes.

3. In the certificates of administrative physicians, the visual acuity should be given for each eye separately, in accordance with Snellen's table.

4. The fact that an applicant uses only one eye in fixing his gaze (for frank vision), as is the case with persons affected with strabismus, does not make him unfit to drive automotive vehicles, if the condition has persisted since early infancy and the better of the two eyes has a vision of at least 2/3, and the other a vision of at least 1/5, and if the two eyes have a normal visual field and show no signs of serious disease.

5. Persons affected with diplopia, aphakia or hemeralopia are not competent to drive automotive vehicles.

6. In examining the hearing, the examiner should determine at what distance whispered words are readily understood. If the examinee can readily understand whispered words at a distance of three meters with one ear, that is sufficient. The examination should also include possible disorders of equilibrium.

7. Pronounced neurasthenia, paresis or other organic diseases of the brain, tabes, and other diseases affecting the spinal cord render a person unfit to drive automotive vehicles. For that reason, if there is sufficient reason to suspect the presence of any one of these diseases, the examinee should be regarded, for the time being, as unfit, and, if need be, a detailed certificate of a specialist may be required.

Convulsions (epilepsy) and vertigo render a person unfit to drive automotive vehicles.

8. In case of disease of the thoracic or abdominal organs, the vascular system and the kidneys, and in diabetes, and the like, the medical examiner must decide in each individual case, on the basis of the total result of the examination, whether or not the disease is of such a nature that the driving of an automobile constitutes a public danger.

9. Exceptions to these rules may be made, with regard to the trunk and the limbs, in certain special cases, when authorization is requested for the driving of only one (and the same) vehicle.

It is not necessary that an applicant shall have a body normal in every particular if he seeks authorization to drive an automobile adapted to his bodily state by the addition of certain mechanisms, or if the missing members are supplied by artificial parts that have proved adequate. In such cases, the applicant must furnish the examiner with evidence of his capacity to drive the automobile in question by securing a certificate of an expert who is the holder of a diploma guaranteeing his ability as an examiner of drivers of automotive vehicles; if need be, the examiner may secure the opinion of a center for orthopedic apparatus, an orthopedic clinic or a specialist in orthopedics. Any expense involved in securing this information will be met by the applicant.

Bulgaria: The medical certificate required at present of every applicant for a license to drive an automobile is brief. It must state that the applicant is not affected with epilepsy, marked myopia or deafness, and that he is not suffering from any chronic disease that renders him unfit to drive an automobile or ride a motorcycle. There is, however, another set of rules in course of preparation in which section 19 is expressed in these terms: "The applicant for a license to drive an automobile must present a medical certificate stating that: he is physically well developed; his eyesight and hearing are normal; his heart is normal; he is not affected with epilepsy; he has no hernia; he is neither abnormal nor alcoholic, and is not affected with any disease that might suddenly cause him to lose control of his vehicle."

Denmark: The form of medical certificate that must be furnished is as follows:

The undersigned, an authorized physician, has examined, on the date hereinafter stated, . . . [full name of examinee], born . . . [date of birth], residing at . . . [complete address], who has furnished, to serve as a means of identification, the attached photograph, to which I have affixed my signature; following which, I make these statements in response to the questions required:

1. Are the extremities normal? If not, what are the abnormal conditions that exist? [amputations, exarticulations, other shortenings, ankylosis, deformities, paralysis, muscular atrophy, and the like. Please specify exactly the nature, the present state and, as far as possible, the origin of the abnormal condition].

2. What is the degree of visual perception (without correction or with glasses habitually worn by the examinee): (*a*) of the right eye; (*b*) of the left eye?

The visual acuity is regarded as sufficient if it is at least 1/2 in one eye and 1/4 in the other.

3. Is the visual field normal: (*a*) in the right eye; (*b*) in the left eye?

4. Can whispered words be heard with each ear separately at distance of 4 meters? If not (fill in blanks): whispered words are heard with the right ear at a distance of ..... meters; with the left ear at a distance of ..... meters.

5. Has the examinee in other respects the free and normal exercise of his physical functions?

6. Are there indications, or is the physician otherwise informed, as to whether or not the examinee is affected with nyctalopia, subject to attacks of epilepsy or fainting, or affected with mental weakness, mental alienation, or other pathologic conditions that diminish his psychic health?

7. In the opinion of the physician, does the examinee fulfil the conditions of mental and physical health required for the driving of automobiles?

Signature .....

Date .....

This certificate is subject to a fee of 10 crowns, payable to the examining physician by the examinee at the time of the examination. The certificate must be sent by the physician directly to the police headquarters of the district in question. A photograph of the examinee, endorsed with the name of the examining physician, must accompany the certificate.

Danzig: A translation of the certificate blank follows:

Full name of applicant.....

Date of birth..... Place of residence.....

Present occupation..... Number of driving permit, if the applicant has ever secured one.....

1. Does the applicant give the impression of being a strong man and in good health?

2. Are there congenital anomalies, anatomic defects, diseases or sequels of accidents affecting the bones, joints, muscles, tendons or skin? If so, of what nature, and how do they influence the use of the parts affected? Is it necessary, before giving a final opinion, to have the applicant examined by an expert authorized by a special diploma to examine drivers of automotive vehicles, or to secure the opinion of the center for orthopedic apparatus or control of prosthesis?

(If an examination or report of this nature has already been made, it should be attached hereto.)

3. Is there any disease of the nervous system (behavior of the tendon reflexes; paralysis, epilepsy, vertigo, disorders of the senses: touch, audition, etc.)?

4. What is the visual acuity with glasses? .....; without glasses? .....

Are there irregularities of the visual field, strabismus, paralysis of the ocular muscles, diseases of the eye or its appendages?

Are there residual effects of former diseases of the eyes? Is there hemeralopia?

5. What is the auditive acuity?

6. Are there diseases of the heart or of the vascular system?

7. Are there diseases of the respiratory organs?

8. Other remarks.

9. As the result of the examination, is there any suspicion of chronic alcoholism?

10. Is it advisable, before pronouncing final judgment, to order an examination by a specialist? If so, from what point of view?

11. From the declarations and the result of the examination, is the applicant capable, from all points of view, of driving automobiles? If he is not, for what type of automobile should the permit be granted, in accordance with the report of the expert who holds a diploma authorizing him to examine applicants for an automobile driver's license?

Place of the examination.....; date.....

The official seal of the administration is affixed to the certificate.

Esthonia: No details were furnished concerning the medical examination on which the securing of a driver's license is to be based. The examination may be given not only by the physicians of the administration but also by the private practitioners. The transportation companies seldom require any further certificate from their drivers than the medical attestation. New regulations are in course of preparation.

France: There are, at present, in France no legal requirements that compel drivers of automobiles to submit to a medical

examination. The drivers of private transportation companies are subject to an examination, not by law, but in accordance with the regulations of these companies.

In 1923, following a communication presented by M. Balthazard, the Academy of Medicine of Paris demanded that all drivers of automobiles be subjected to a medical examination. The commission on hygiene of the chamber of deputies endorsed the suggestion. Various proposals were made by the members of parliament. They have not yet come up for discussion. There is, however, a strong public opinion in favor of a compulsory medical examination for all drivers of automobiles. The Chambre syndicale des cochers-chauffeurs expressed in the *Paris-Soir*, under date of Dec. 24, 1927, the following opinion: "The psychotechnical examination to which candidates of the S. T. C. R. P. are subjected has our unqualified endorsement."

The *Revue de l'Automobile-Club du Rhône* demands that the technical examination for a driver's permit for automobilists shall be supplemented by a medical examination (*Impartial français*, Jan. 3, 1928).

Great Britain: In order to secure a license to drive an automotive vehicle destined for public use, an applicant must produce a medical attestation, in response to a detailed questionnaire. The conditions are rigorous for persons past 50 years of age. These attestations are submitted to a physician designated by the administration, who either accepts or rejects the applications. The general omnibus company of London subjects applicants for employment as drivers to rigorous tests.

Netherlands: The medical examination consists merely in the physician assuring himself that the applicant is in good health and without physical or mental defects that would embarrass him in driving an automobile or a motorcycle. There are no regulations specifying the diseases and the infirmities that render a person unfit to drive. The driver is not obliged to present himself for reexamination at the end of any given period.

Hungary: The medical certificate states only that the candidate has no disease or physical defect that would hinder him in driving an automotive vehicle. A physical constitution without defect, and, above all, the complete integrity of the organs of sense, are demanded.

Latvia (Lettonia): The medical certificate must attest to a satisfactory condition of the eyesight of the candidate, of his hearing, and of his general health. In addition, a psychotechnical examination may be demanded. A driver's license is valid for only five years; after that date it must be renewed, which requires a new medical examination.

Grand Duchy of Luxemburg: The applicant must furnish a medical certificate establishing that he has a good constitution, a visual acuity of at least 8/10, after correction; that his hearing is normal, and that he is not affected with any organic lesion of the heart, the pleura or the kidneys that might bring on a sudden syncope. As far as possible, it must be established that he is exempt from all neuropathic affections: monomania, hysteria, epilepsy, and, finally, that he presents no serious signs of acute or chronic alcoholism.

Norway: The medical examination preliminary to securing a driver's permit has to do chiefly with the eyesight, the hearing, the general health, and the facility of the movements of the trunk and the limbs.

Poland: An applicant for a permit to drive an automobile must present a medical certificate drawn up in conformity with the following formula:

MEDICAL CERTIFICATE

Issued by Dr....., residing at.....
[town and state], ...[street and number] concerning the physical capacity of Mr.....born.....
residing at..... occupation.....
to drive mechanical vehicles. The identity of the person has been established by . . . (state by whom, or how).

QUESTIONS

A. Declaration of the Examinee: Does he suffer from convulsions, epilepsy, vertigo, convulsive tic, rotatory tic, hemeralopia? Does he use narcotics? Does he make an abusive use of alcoholic beverages?

B. Direct Examination: 1. Are the movements of the head and the trunk accurate and sufficiently rapid?

2. (*a*) Are the strength and the functioning of the muscles of the upper and lower limbs satisfactory?

(*b*) Are the movements of the tendons of these limbs free?

(*c*) Is there any shortening of the limbs, or any defect whatever in any part of the limbs (absence of fingers or toes)?

3. (*a*) Acuity of vision (right eye and left eye) with and without correction.

(*b*) Is the visual field contracted?

(*c*) Is there no strabismus or paralysis of the muscles of the eye?

(*d*) Is there any hemeralopia?

(*e*) Are there any other defects or diseases of the eyes or eyelids?

4. The applicant hears and understands whispered words: (*a*) with the right ear at a distance of ..... meters; (*b*) with the left ear at a distance of ..... meters.

5. Are there any symptoms of (*a*) neurasthenia; (*b*) paresis; (*c*) other mental diseases; (*d*) tabes; (*e*) other diseases of the spinal column; (*f*) epilepsy; (*g*) vertigo; (*h*) are the reflexes normal; (*i*) is there any retardation in the rotatory movements of the trunk; (*j*) is it necessary to subject the applicant to a psychotechnical examination, and, if so, for what reason?

6. Are there any symptoms of (*a*) the abuse of narcotics, and, if so, what? (*b*) the abuse of alcohol?

7. Does the examinee present any other diseases that might endanger public safety in case he is permitted to drive a mechanical vehicle?

8. Does the examinee suffer from any diseases that might be aggravated by serving as a driver of mechanical vehicles? If so, what are they?

9. Has the examinee been informed regarding them?

10. Can the examinee drive a mechanical vehicle?

11. Remarks:

Date..... Signature.....

Sweden: The physician must attest that the applicant for an automobile driver's license is not affected with any disease or defect that diminishes essentially his aptitude for driving an automobile.

The visual acuity after correction must be at least 7/10 in one eye and 3/10 in the other eye. The whispered voice must be heard at a distance of 3 meters.

Switzerland: In Switzerland the cantons, and, in certain instances, the communes, are sovereign in the matter of highway regulations. The consequence is that the police regulations vary notably in the various cantons, and even in the various communes of the same canton. To remedy this condition of affairs, twenty-one of the twenty-five cantons entered into an agreement, in 1921. The federal authorities were called on to draft a law concerning the automobile traffic. By a plebiscite, held May 15, 1927, the people rejected the law proposed. According to the constitution, it is the duty of the federal council to submit to the federal chambers, and then to the people, a new draft of a law, in place of the proposed law that was rejected.

In the absence of a federal law, the nearest approach to it is the agreement mentioned, which still remains in force. According to this agreement, a license to drive an automobile cannot be issued to persons who are addicted to drunkenness or who are affected with an infirmity (for example, grave epilepsy, myopia or deafness) that prevents them from driving with safety.

In the canton of Vaud, a person desiring to be permitted to drive an automobile used in a public service must secure a license from the municipality on the basis of medical certificate establishing that he is physically fit to drive such vehicle with safety.

Certain transportation companies impose a detailed medical examination on their drivers. That is true, for instance, of the federal postal administration.

Some of the taxi companies of the city of Zurich have applicants for positions as drivers examined by the psychotechnical institute.

Jugoslavia: The medical examination and the certificate required of applicants for an automobile driver's license vary in the different regions of the country.

In some places, it is sufficient if the applicant submits merely a medical attestation to the effect that he is physically and mentally sound. Furthermore, a certificate from an accredited physician is required attesting that the applicant is not affected by any bodily or mental disease or any physical defect that prevents him from operating an automobile or a motorcycle.

The most strict regulation is in force in Zagreb. The applicant must present a medical certificate issued by the police physician. The medical examination must take account of any defect that would render a person incapable of driving an automobile with safety; more particularly, defects of vision and hearing, the exact status of which must be stated in detail.

Uniform regulations are in course of preparation.

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Medicolegal

Validity of Oral Contract for Medical Services

(Salyers v. Kenmont Coal Company (Ky.), 11 S. W. (2d) 705)

Salyers, a physician, entered into an oral contract with the Kenmont Coal Company, whereby he agreed to render such medical treatment to the company's injured employees as might be required by the workmen's compensation act. The contract was to remain in force for an indefinite period. The company refused to pay for services rendered under the contract. The physician thereupon brought suit in the circuit court, Perry County. He demurred to some of the paragraphs in the defendant's answer to his petition. The court "carried the demurrer back to the petition as amended and sustained it," and the physician thereupon appealed to the court of appeals of Kentucky.

The employer, the appellee in this proceeding, insisted that the appellant must seek his remedy, if he has any, before the workmen's compensation board and that the court had no jurisdiction over the case. The court of appeals, however, held this claim to be without merit. The laws of Kentucky vest in the workmen's compensation board authority to allow compensation to an injured employee for medical, surgical and hospital treatment. They determine the amount of the compensation so allowable and authorize the board to regulate fees and charges. There is nothing in the provisions of the law, however, said the court, which would prevent an employer from making such a contract as the appellant alleges was made in the present instance, and the contract was not in contravention of public policy or of the statute.

The appellee contended further that inasmuch as the contract was to cover an indefinite period, it was within the purview of the statute of frauds as defined by the Kentucky statutes and therefore, being an oral contract, was void. Ordinarily, said the court, where a contract may be performed within a year, or where a contract for personal services may be terminated by either party within a year, it is not within the statute of frauds. In the present case, moreover, the services under the contract had been performed and nothing remained except for one party to pay the agreed compensation, and, the court said:

> Where the contract has been fully performed by the plaintiff, as in case of a contract for services for a period longer than a year, and nothing remains to be done by the defendant but to pay the amount of the agreed compensation, it has been held that the contract may be enforced against the defendant according to its terms.—25 R. C. L. 464.

The judgment of the trial court was reversed and the cause remanded with directions to overrule the demurrer to the petition.

Erection of Tuberculosis Hospital Authorized

(Law et al v. City of Spartanburg (S. C.), 146 S. E. 12)

The legislature of South Carolina directed the county board of Spartanburg to construct a tuberculosis hospital on a site selected by the board of trustees of the Spartanburg General Hospital. The trustees selected a site within the city of Spartanburg. Thereafter the city council of Spartanburg passed an ordinance prohibiting the erection of a tuberculosis hospital within the city limits. The county board of Spartanburg County, the petitioners in this case, then petitioned the supreme court, in original jurisdiction, for a permanent injunction enjoining the city of Spartanburg from enforcing the ordinance. The petitioners contended that the city had no authority to pass any ordinance in conflict with or inconsistent with the laws of the state.

That which the state authorizes, directs, requires, licenses or expressly permits, the supreme court said, a municipality is powerless to prohibit. Where the legislature directs or authorizes a particular thing to be done, the doing thereof cannot be complained of as a nuisance, although, apart from such authority, it might be a nuisance. When the legislature enacted the statute authorizing and requiring Spartanburg County to establish and maintain a tuberculosis hospital, said the court, it declared that the establishment and maintenance of such hospital was not detrimental to the public health, and the city of Spartanburg could not by ordinance say that it was detrimental. The city of Spartanburg could not pass an ordinance to prevent what the legislature had given the petitioners the right to do. The supreme court held, therefore, that the petitioners were entitled to a permanent injunction, enjoining the enforcement of the city ordinance.

Testimony of Expert Witness Based on Hearsay

(Security Ben. Assn. v. Small, (Arizona), 272 P. 647)

The Security Benefit Association issued a benefit certificate to Pierce, May 14, 1924, in California, who warranted that he was in good health and agreed that the certificate should not be in force until he signed it while he was in good health. In July, 1924, Pierce moved to Arizona, where he died of pulmonary tuberculosis, in June, 1926. The association denied liability, claiming that Pierce was not in good health when he applied for and accepted the certificate. The beneficiary, Pierce's mother, Nancy Small, obtained a judgment in the superior court, Cochise County, and the association appealed to the supreme court of Arizona.

The beneficiary testified on direct examination in the trial court that Pierce was in good health, May 14, 1924, the day he obtained the benefit certificate. On cross-examination, counsel for the association asked why Pierce returned to Arizona in July. Objection to this question, on the ground that it was not proper cross-examination but purely defensive matter, was sustained by the trial court. The supreme court held, however, that this was an error. The purpose of the question was to ascertain as a preliminary matter whether Pierce returned to Arizona for his health, and in case he did, then to ask whether he was at that time suffering from tuberculosis or any other insidious disease and, if so, how long since its symptoms had been first observed. If the answer had disclosed that the return had been for Pierce's health and that his trouble was tuberculosis, counsel for the association should have been permitted to trace it back step by step and to disclose to the jury how near the onset of the disease came to May 14, the day Pierce obtained his benefit certificate.

The trial court excluded also two interrogatories and their answers in the deposition of a physician who treated Pierce on his return to Arizona. The excluded answers were admittedly based, at least in part, on statements by Pierce's wife and by the beneficiary and purported to attribute the tuberculosis to an attack of influenza which Pierce had had early in 1924. The exclusion was proper, the supreme court held, citing Jones on Evidence, paragraph 376 (ed. 3):

> The opinion of experts may in some cases be based upon personal knowledge gained from their own observations or examination, but they cannot give in evidence opinions based upon information gained from the statements of others outside the courtroom, since in such case the opinions would depend upon hearsay. Thus, when a medical witness is examined as an expert, his opinion is inadmissible if based upon the declaration of nurses or other physicians, made out of court, although, the declaration of the patient may, under proper limitations, form a part of the basis of such opinions.

Further error was urged by the association, on the ground that instructions to the jury that they were not bound to accept the testimony of medical expert witnesses, but should give such testimony the weight and force they believed it merited, was a charge or comment on the evidence by the judge, such as is prohibited in the state constitution. The objection was well founded, said the court. Jurors are the judges of the weight of the evidence, and they appraise all of it in accordance with their judgment. A charge which singles out any particular portion of the evidence and tells the jurors several times that they should give to it only such weight as they think it entitled to gives undue prominence to this particular testimony and has a tendency to lead them to weigh it in accordance with what they believe to be the court's judgment rather than their own.

To support its contention that Pierce was not in good health on May 14, 1924, the association introduced in evidence a certified copy of the certificate of death of Pierce, on file with the Arizona Board of Health. The cause of death was therein given as pulmonary tuberculosis and its duration as four years. The trial court instructed the jury that this certificate of death was prima facie evidence of all facts stated therein, that prima facie evidence was merely an inference and the weakest of all

evidence, and that it ceased to be sufficient when rebutted or contradicted by contrary or better evidence. The association objected on the ground that such an instruction was a comment on the weight of the evidence and contrary to the constitution. The supreme court upheld this objection, saying that while it was the court's duty to define the term "prima facie evidence," the strength or weakness of prima facie evidence was not one of its constituent elements, and it was for the jury, not the court, to determine whether the death certificate was strong or weak as evidence of the duration of Pierce's illness.

For the reasons stated, the court reversed the judgment of the trial court and ordered a new trial.

Practice of Pharmacy by Laymen and Corporations

(Louis K. Liggett Co. v. Baldridge, Atty. Gen., et al. (U. S.), 49 S. Ct. 57)

The Pennsylvania legislature passed an act limiting the ownership of drugstores to licensed pharmacists. The act provided further that no corporation, association or copartnership should own a drugstore unless all the partners or members of such corporation, association or partnership were licensed pharmacists. The Louis K. Liggett Company, the owner of certain drugstores in Pennsylvania, claimed that the act was unconstitutional in that it denied to it the due process of law and the equal protection of the laws, guaranteed by the Fourteenth Amendment. It brought suit in the United States district court, eastern district of Pennsylvania, to enjoin the officers of the state from enforcing the act. That court, however, held that the act was constitutional because of a substantial public interest in the ownership of drugstores where prescriptions are compounded. It refused to interfere with the officers of the state in the discharge of their supposed duty to enforce the act. The plaintiff thereupon appealed to the United States Supreme Court.

A state, said the supreme court, undoubtedly may regulate the prescribing, purchase and sale of medicines, and the compounding of prescriptions, by appropriate legislation, to the extent reasonably necessary to protect public health. This Pennsylvania sought to do by acts in force long before the passages of the act under review. No one but a licensed physician could lawfully practice medicine or prescribe medicines for sickness; no one but a registered pharmacist lawfully could have charge of a drugstore; every drugstore itself must be registered, and this could be done only where the management was in charge of a registered pharmacist; stringent provision was made to prevent the possession or sale of any impure drug, or any drug below the standard of strength, quality and purity as determined by the recognized pharmacopeia of the United States; no one but a registered pharmacist could lawfully compound physicians' prescriptions; and, finally, the supervision of the foregoing matters and the enforcement of the laws in respect thereto were placed in the hands of the state board of pharmacy, which was given broad powers for these purposes. But the act under review does not deal with any of the things covered by the earlier statutes enumerated above. It deals only with ownership. Here the pertinent question is, therefore, what is the effect of mere ownership of a drugstore on the public health? In the light of the various requirements of the Pennsylvania statute, it is made clear, if it were otherwise doubtful, that mere stock ownership in a corporation owning and operating a drugstore can have no real or substantial relation to the public health and that the act under review creates an unreasonable and unnecessary restriction on private business. No facts were presented by the record, and so far as appears none were presented to the legislature which enacted the statute, that would give rise to a different conclusion. If detriment to the public health has resulted in the ownership by laymen of stock in corporations that own and operate drugstores, some evidence of that fact ought to be forthcoming. But, said the court, none has been produced, and so far as the count was informed none exists. The claim that mere ownership of a drugstore by one who is not a pharmacist bears a reasonable relation to the public health rests only on conjecture, unsupported by anything of substance, and that is not enough. The act was held to be, therefore, unconstitutional as in contravention of the due process clause of the Fourteenth Amendment, and the decree of the court below refusing to enjoin the officers of the state from enforcing the act was reversed.

Fees of Hospital Staff Under Compensation Act

(Allen's Case (Mass.), 164 N. E. 458)

Dr. S., a member of the staff of the hospital to which an injured employee was taken following an injury, sought to recover compensation for services rendered to the injured employee in the hospital. The industrial accident board denied his claim, but in the superior court a decree was entered for Dr. S. The insurer appealed to the supreme judicial court of Massachusetts, which reversed the decision of the court below and entered a decree for the insurer.

When the injured employee was taken to the hospital, he told the nurse that he knew no doctor at the hospital, and the nurse suggested Dr. S. The patient acquiesced in the suggestion, and Dr. S. treated him. The insurer paid the hospital bill. The law provides that during the first two weeks after an injury the insurer shall furnish adequate and reasonable medical and hospital services. As the court construed the findings of the industrial accident board, the insurer did all that was required of it; it furnished the employee with adequate and reasonable medical and hospital services, and, said the court:

> Physicians as well as nurses are generally expected to be in attendance at a public hospital. A patient who has been taken to such an institution, if he has no physician of his own to treat him, naturally expects that he will receive treatment from some one on the staff. When an injured employee under the compensation act goes to such a hospital and does not select a physician, the payment to the hospital of its charges includes the expenses of nurses and physicians, and the insurer is not required to pay the physician who is a member of the staff for his services.

The court approved the finding of the industrial accident board that the employee in this case did not choose a physician. He accepted the suggestion of the nurse, but he did not make such a selection as the statute contemplates when a patient selects a physician other than the one provided by the insurer.

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Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Otolaryngology, Atlantic City, N. J., October 21-25. Dr. William P. Wherry, Medical Arts Building, Omaha, Executive Secretary.

American Association of Obstetricians, Gynecologists and Abdominal Surgeons, Memphis, Tenn., September 16-18. Dr. James E. Davis, 1825 Geddes Avenue, Ann Arbor, Mich., Secretary.

American Child Health Association, Minneapolis, September 30-October 4. Dr. Philip Van Ingen, 125 East 71st Street, New York, Secretary.

American College of Surgeons, Chicago, October 14-18. Dr. F. H. Martin, 40 East Erie Street, Chicago, Director-General.

American Electrotherapeutic Association, Indianapolis, September 9-13. Dr. C. C. Vinton, Guildersleeve Ave., Rosedale, New York, Secretary.

American Public Health Association, Minneapolis, September 30-October 4. Mr. Homer N. Calver, 370 Seventh Avenue, New York, Secretary.

American Roentgen Ray Society, New York, September 17-20. Dr. John T. Murphy, 421 Michigan Street, Toledo, Ohio, Secretary.

Associated Anesthetists of the United States and Canada, Chicago, October 14-18. Dr. F. H. McMechan, 770 West Lake Road, Avon Lake, Ohio, Secretary.

Association of Military Surgeons of the United States, Denver, Colorado, September 26-28. Dr. J. R. Kean, Army Medical Museum, Washington, D. C., Secretary.

Central States Pediatric Society, Milwaukee, September 27-28. Dr. H. T. Price, Westinghouse Building, Pittsburgh, Secretary.

Colorado State Medical Society, Greeley, September 3-5. Dr. F. B. Stephenson, Metropolitan Building, Denver, Secretary.

Delaware, Medical Society of, Farnhurst, October 8-10. Dr. James E. Brayshaw, Medical Arts Building, Wilmington, Secretary.

Indiana State Medical Association, Evansville, September 25-27. Mr. T. A. Hendricks, Hume-Mansur Building, Indianapolis, Executive Secretary.

Interstate Postgraduate Medical Association of North America, Detroit, October 21-25. Dr. Edwin Henes, Jr., 445 Milwaukee Street, Milwaukee, Executive Secretary.

Kentucky State Medical Association, Louisville, October 21-24. Dr. A. T. McCormack, 532 West Main Street, Louisville, Secretary.

Medical Library Association, Cleveland, September 3-5. Miss Sue Biethan, University of Michigan General Library, Ann Arbor, Secretary.

Michigan State Medical Society, Jackson, September 17-19. Dr. F. C. Warnshuis, G. R. National Bank Building, Grand Rapids, Secretary.

Nevada State Medical Association, Elko, September 27-28. Dr. H. J. Brown, Box 688, Reno, Secretary.

Pennsylvania, Medical Society of the State of, Erie, September 30-October 3. Dr. Walter F. Donaldson, 500 Penn Avenue, Pittsburgh, Secretary.

Vermont State Medical Society, Bellows Falls, October 10-11. Dr. William G. Ricker, 29 Main Street, St. Johnsbury, Secretary.

Virginia, Medical Society of, Charlottesville, October 22-24. Miss Agnes V. Edwards, 104½ West Grace Street, Richmond, Secretary.

Western Association of Physical Therapy, Indianapolis, September 9-13. Dr. Charles Wood Fassett, 115 E. 31st St., Kansas City, Mo., Sec'y.

Wisconsin, State Medical Society of, Madison, September 10-13. Mr. J. G. Crownhart, 119 E. Washington Ave., Madison, Executive Sec'y.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American J. Diseases of Children, Chicago

38: 1-226 (July) 1929

American Pediatric Society and Preventive Pediatrics. H. L. K. Shaw, Albany, N. Y.—p. 1.
*Typhoid in Children: Sixty-Seven Cases. L. J. Halpern, Chicago.—p. 10.
*Carbohydrate Tolerance in Infants and Young Children with Celiac Disease. A. B. MacLean and R. C. Sullivan, New York.—p. 16.
*Moro Embrace Reflex in Infancy. M. B. Gordon, New York.—p. 26.
*Comparative Effects of Diphtheria Toxoid and Toxin-Antitoxin as Immunizing Agents. G. F. Weinfeld and M. Cooperstock, Ann Arbor, Mich.—p. 35.
Direct Laryngoscopy as Method for Cultural Studies of Pulmonary Secretions in Infants and Children. I. B. Goldman, New York.—p. 47.
*Otitis Media in Infancy. W. S. O'Donnell, Detroit, and C. Myers, New York.—p. 49.
*Beriberi in Infants: Four Cases. J. I. Waring, Charleston, S. C.—p. 52.
*Icterus Neonatorum. A. Goldbloom and R. Gottlieb, Montreal, Canada.—p. 57.
*Pathologic Changes in Large Interlobar Fissures in Children. E. G. Stoloff, New York.—p. 75.
Unusual Association of Postinfantile Rickets with Osteomalacia: Five Cases. G. M. Blank, Lorain, Ohio, and G. W. Graves, New York.—p. 84.
Tracheal Foreign Body (Bone) Simulating Diphtheria. J. Miller, New York.—p. 95.
*Encephalitis Accompanying Whooping Cough. J. A. Askin and H. M. Zimmerman, New Haven, Conn.—p. 97.
*Sickle Cell Anemia in Greek Family. T. B. Cooley and P. Lee, Detroit.—p. 103.
Congenital Backward Dislocation of Knee. S. W. Boorstein, New York.—p. 107.
Congenital Heart Block. W. M. Yater, Washington, D. C.—p. 112.
Richard Wiseman, 1622-1676. J. Ruhräh, Baltimore.—p. 137.

Typhoid in Children.—In a study of sixty-seven children with typhoid, who ranged in age from 10 months to 12 years, the following observations appear noteworthy to Halpern: The onset was relatively abrupt in almost one half of the cases. Abdominal pain was a frequent initial complaint and, because of its location at times in the right lower quadrant and its sudden onset with vomiting, it occasionally made difficult the exclusion of acute appendicitis. Signs of meningeal irritation were relatively frequent, and often the disease with this complication simulated the picture of a true primary meningitis. The pulse rate was rapid and in proportion to the degree of fever in one fourth of the cases. The blood in 6 per cent of the cases revealed a leukocytosis in the absence of complications, instead of the usual leukopenia. Positive Widal reactions outnumbered the positive blood cultures obtained, and both were more frequently obtained during the second week of illness. The stools yielded a higher percentage of positive cultures than the urine. Complications were largely suppurative processes. Death occurred most often in the second week of illness. Signs of meningeal involvement frequently preceded death.

Carbohydrate Tolerance in Children with Celiac Disease.—Fourteen patients with celiac disease whose blood was studied by MacLean and Sullivan showed increased tolerance for dextrose. Larger amounts of dextrose, galactose, dextrose and galactose, and fructose failed to elicit an increase in blood sugar. After the ingestion of fructose and dextrose given in equal proportions, blood sugar curves were obtained similar to those of normal children following the ingestion of dextrose. This suggests a more normal metabolism of invert sugar and is a possible explanation of the celiac patient's tolerance of bananas. The authors conclude that of the three possible explanations of this flat sugar curve, the first, a lowered renal threshold, has been disproved, and may be disregarded. Against the second, lack of absorption of carbohydrate from the intestine, there is some rather suggestive evidence, but before a definite statement can be made more experimental data are required. At the present stage of this study, the third explanation, endocrine involvement, is not untenable.

Moro Embrace Reflex in Infancy.—The embrace reflex was first described by Moro in 1918. He found that on placing an infant on a table and then forcibly striking the table on either side of the child, a motor reaction is obtained. The arms are suddenly thrown out in an embrace attitude, describing an arc and tending to approach one another with a slight tremor; the fingers are at first spread and then closed. Similar movements are observed in the lower extremities. The Moro embrace reflex was studied by Gordon in 300 normal infants and in twenty-one sick children presenting various pathologic conditions, such as intracranial hemorrhage of the new-born infant, brachial palsy, cerebral spastic paraplegia, mongolian idiocy, hydrocephalus, mental retardation, microcephalus and meningitis. He found that the reflex is an unconditional reflex which is strongest during the first two months of life, diminishing in intensity from then on and disappearing at the end of the fourth month. It may be observed occasionally during the fifth month in normal infants. It is a symmetrical reflex, and absence on one side indicates either motor paralysis or injury on that side. Severe cerebral injury and general weakness diminish the intensity of the response during the first few weeks. There is an increased intensity with general improvement. Persistence of the Moro reflex in children above the age of 6 months signifies injury of the cerebral or the pyramidal tract.

Diphtheria Toxoid and Toxin-Antitoxin as Immunizing Agents.—Weinfeld and Cooperstock believe, from their own experience and that of others, that the assertion is warranted that toxoid merits the preference in the choice of an immunizing agent in the prophylaxis of diphtheria.

Otitis Media in Infancy.—A method is described by O'Donnell and Myers whereby pus can be aspirated from the middle ear, and the organism can be cultivated and isolated; it has proved satisfactory, and can be carried out easily. Thirty-three children were studied. The organisms obtained were *Staphylococcus aureus*, twenty-four cultures; *Staphylococcus albus*, eight; hemolytic streptococcus, three, and the colon bacillus, eight. In the children in whom cultures were made from both middle ears, the same organism was isolated from each middle ear. A comparison of the description of the drum and the type of organism obtained did not show anything significant. In the staphylococcus and colon group the drum was dull gray; bulging occurred in all quadrants, and the pus was thick and tenacious. In the hemolytic streptococcus group, only three cases were obtained; the tympanic membrane was vivid red; the bulging was less marked and the pus obtained was thin and serous.

Beriberi in Infants.—Three infants with beriberi treated by Waring responded well to a diet rich in vitamin B. They were given lactic acid milk, dextrin-maltose, orange juice, cod liver oil, milk, dried milk mixture, cereal, extract of malt, soup, apple sauce, as seemed indicated, and brewers' yeast.

Icterus Neonatorum.—Goldbloom and Gottlieb conclude from their study that icterus neonatorum is a physiologic condition which is the result of a postnatal readjustment from an environment requiring the presence of polycythemia for the maintenance of oxygenation to one in which no such extraordinary measures are necessary. Icterus is present in all infants, visibility being only a matter of degree.

Interlobar Fissures in Children.—A case of interlobar pleurisy of the large fissure associated with cardiac disease is presented by Stoloff, and another of interlobar pleurisy of the large fissure associated with disease of the tuberculous lymph glands, both illustrating the sparsity of physical signs and the absence of roentgen evidence when the routine postero-anterior positions are utilized. He says that when the children are examined in the lordotic and also in the lateral positions, the presence and extent of the interlobar pathologic changes become unequivocally evident.

Encephalitis Accompanying Whooping Cough.—Askin and Zimmerman report the case of an infant, aged 4 months,

who showed the clinical picture of whooping cough accompanied by neurologic signs suggestive of encephalitis. At autopsy, bilateral focal pneumonia, acute diffuse encephalitis and subarachnoid hemorrhage were found.

Sickle Cell Anemia in Greek Family.—Cooley and Lee assert that theirs are the first observations of definite sickle cell anemia in subjects regarding whom no reasonable suspicion can be raised on an admixture of negro blood. The patients were a mother and two of her children, both boys.

American J. Obstet. & Gynec., St. Louis

17: 1-164 (July) 1929

*Infected Endometrial Cysts of Ovaries: Three Cases. J. A. Sampson, Albany, N. Y.—p. 1.
*Carbohydrate Metabolism in Eclampsia. H. J. Stander and E. P. H. Harrison, Jr., Baltimore.—p. 17.
*III. Fluctuations in Blood Sugar During Eclampsia: Relationship Between Blood Plasma Sugar and Corpuscular Sugar Variations in Eclampsia as Shown by Serial Curves. P. Titus and E. W. Willetts, Pittsburgh.—p. 27.
IV. Fluctuations in Blood Sugar During Eclampsia: Analysis of Titus-Willetts Data to Determine Effects of Anticoagulant on Plasma-Volume and Cell-Volume Relationships. H. D. Lightbody, Pittsburgh.—p. 36.
Classification of Toxemias of Pregnancy. P. F. Williams, Philadelphia. —p. 38.
*Blood Pressure Readings in 1,000 Pregnant Women. E. L. Cornell, Chicago.—p. 42.
Occurrence of Ovarian and Anterior Pituitary Hormone in Urine of Pregnant Women. C. Mazer and J. Hoffman, Philadelphia.—p. 48.
Investigation of Relation of Sperm Morphology to Fertility by Means of Microdissection. G. L. Moench, New York.—p. 53.
Cervix in Labor. L. S. Loizeaux, New York.—p. 57.
*Infiltration of Cervix Uteri with Mercurochrome-220 Soluble in Treatment of Cervicitis and Endocervicitis. F. Helvestine, Jr., and F. A. Farmer, Roanoke, Va.—p. 68.
Coagulation Diathermy in Cervicitis, Using New Electrode, with Account of Results in 200 Cases. F. M. Ende, New York.—p. 72.
*Erythrocyte Sedimentation Test in Gynecology. C. M. Stimson and H. W. Jones, Philadelphia.—p. 81.
Pelvic Fascia Dystocia. I. Wilens, New York.—p. 94.
*Puerperal Morbidity in Hospital Practice. M. S. Tansinsin, Pittsburgh. —p. 98.
*Malignant Growths of Uterus in Young Girls. B. C. Hirst, Philadelphia. —p. 104.
Cerebral Birth Hemorrhage in Premature and Immature Infants. A. Capper, Philadelphia.—p. 106.
Appendicitis in Pregnancy. A. L. McDonald, Duluth, Minn.—p. 110.
*Medullary Carcinoma of Ovary: Case. J. Sarnoff, New York.—p. 116.
Peritoneal Implantations of Ovarian Cyst Contents with Decidual Resemblances. M. Ballin and P. F. Morse, Detroit.—p. 120.
Hydatidiform Mole Followed by Normal Pregnancy and Childbirth. W. B. D. Van Auken, Troy, N. Y.—p. 124.
Uterus Bicornis Unicollis: Case. M. O. Magid, New York.—p. 125.
Method for Demonstrating Mechanism of Labor. H. Thoms, New Haven, Conn.—p. 127.
Trowel Vaginal Retractor. L. Rudolph, Chicago.—p. 128.
New Radiographic Table. I. F. Stein and R. A. Arens, Chicago.—p. 130.
Papilloma of Nipple. W. D. Fullerton, Cleveland.—p. 136.

Infected Endometrial Cysts of Ovaries.—Sampson reports three cases of infected endometrial cysts of the ovaries, two of which were bilateral. In the first bilateral case the cysts were infected with a gram-negative bacillus having many of the cultural features of the paratyphoid group. A similar organism was obtained from the urine. The bacteria apparently reached the cysts through the blood stream. The primary source of the infection was not ascertained. In the second bilateral case cultures failed to show any growth, but a gram-positive coccus occurring singly, in pairs and in short chains was found in smears from the contents of the cysts, as well as in sections stained by the Gram-Weigert method. The abdominal wound became infected with a similar organism which also failed to grow in culture mediums. As in the previous case, the bacteria apparently reached the cysts through the blood stream. The primary source of the infection was not ascertained. In the third case, a large endometrial cyst of the left ovary, filled with foul smelling, purulent, blood fluid was present. The cyst was fused with the sigmoid. Cultures and smears were not made. Gram-negative bacilli were found in the purulent exudate of stained sections of the cyst wall. Circumstantial evidence indicated that the cyst became infected from the sigmoid, but this cyst also might have been infected through the blood stream. These three cases suggest that endometrial cysts of the ovaries may readily become infected. The presence of bits of necrotic material in their blood contents, the trauma associated with their reaction to menstruation, the fact that an epithelial lining is often lacking in portions of the cyst (especially the larger ones), thus lessening the protection of their contents, all predispose to their infection from bacteria invading the cyst through any channel and especially that of the blood stream. In addition, the incidence of perforation of their walls might lead to bacteria reaching their contents from infection in the pelvis at that time.

Carbohydrate Metabolism in Eclampsia.—Blood sugar studies were made by Stander and Harrison in seventy-eight eclamptic women. They state that in the majority of cases of eclampsia there is a tendency toward hyperglycemia. In general the blood sugar level remains fairly constant throughout the disease. As there is no relative hypoglycemia, that condition cannot be utilized to explain the production of eclamptic convulsions, and these convulsions are not comparable to insulin hypoglycemic convulsions. Following eclamptic convulsions there is a slight rise in blood sugar. A patient may have eclamptic convulsions with the blood sugar at different levels, and these levels are not greatly disturbed by the convulsions.

Blood Plasma Sugar and Corpuscular Sugar Variations in Eclampsia Shown by Serial Curves.—Titus and Willetts state that the circulating sugar which is most mobile or most readily available is in the plasma, and that it is not until the corpuscles are deprived of their sugar that a convulsion occurs (i. e., on the down sweeps of the corpuscular sugar curve). The first evidence of recovery is an increase in plasma sugar probably obtained from the hepatic stores, after which the plasma sugar values subside as the corpuscular sugar increases, obviously during replenishment of the erythrocytes from their surrounding plasma. It is again pointed out that these fluctuations as well as the eclamptic convulsions can usually be stopped abruptly at any point by the hypodermic administration of morphine and the intravenous administration of hypertonic dextrose solutions, now to be utilized as specific rather than empiric therapeutic measures.

Blood Pressure Readings in 1,000 Pregnant Women.—These 1,000 patients have been divided into three groups by Cornell: those with a systolic pressure (1) below 129; (2) between 130 and 139, and (3) above 140. In group 1 the blood pressure throughout pregnancy is lower than in normal nonpregnant women. There is practically no change in the average readings from one month to the next, the minimum being 108.744 and the maximum 113.148. In group 2 appear the potentially toxic cases. These patients demand more attention than is usually given them, since a certain percentage will prove to be toxic. In group 3 are seen the toxic patients. In the series studied there was no case of eclampsia. There is only an average difference of 6 points in the diastolic readings taken in the fourth and fifth phases. The latter reading is more accurate and should therefore replace the fourth phase reading in the recording of the diastolic pressure. The average readings in all cases have been somewhat lower than those usually recorded. This is not an accurate gage, since a rather high percentage of patients have a blood pressure of 140 +.

Mercurochrome in Treatment of Cervicitis and Endocervicitis.—The infiltration of the cervix with mercurochrome in the treatment of endocervicitis is defended by Helvestine and Farmer as a rational procedure which has as its purpose the placing of a germicidal substance at the base of the cervical glands where the infectious organisms are harbored. The method is simple to carry out, does not require complicated or expensive apparatus, and has not had untoward effects. The results are obtained relatively quickly and the number of treatments required varies directly with the extent of the pathologic changes present. Cases of specific infections do not respond to treatment as quickly as those of nonspecific infections.

Erythrocyte Sedimentation Test in Gynecology.—Stimson and Jones regard the sedimentation test as a sensitive means of recognizing the presence of inflammation and tissue destruction. In pelvic inflammatory cases a reading of 20 or less, when previously higher, indicates that the inflammatory process has subsided sufficiently to permit of surgical intervention. The sedimentation test is a more certain means of indicating inflammatory change than is the white blood count or temperature curve. In early ectopic pregnancy, unruptured and uncomplicated, the sedimentation rate will be slow. The

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test will not differentiate between appendicitis, pus tubes and ruptured ectopic pregnancy with marked hemorrhage. Inflammatory change and tissue involvement elsewhere in the body (viz., the lungs) influence the sedimentation reaction—a point in favor of careful physical examination. In cases of cancer sedimentation corresponds to the degree of tissue involvement. In myoma the test will show in what cases inflammatory complications may be expected.

Puerperal Morbidity in Hospital Practice.—Using the rigid standard defined by the British Medical Association, Tansinsin found that the morbidity in 446 consecutive cases was 19.9 per cent. This included those cases in which delivery was carried out by nonstaff physicians having privileges in the hospital as well as those previously handled outside by midwives or physicians. It included both operative and spontaneous deliveries of all types in this service. When mercurochrome-acetone-alcohol solution was used for the preparation of the perineum, the morbidity due to infected perineorrhaphy was only 1.56 per cent. Vaginal examination increases the risk of infection. Operative procedures are accompanied by increased morbidity, cesarean section showing the highest incidence of all obstetric procedures. Obstetric morbidity due to pyelitis is high, being 2.46 per cent of the series. Morbidity due to phlebitis occurs in only 1.13 per cent of the total febrile cases. There is a decrease of morbidity with each subsequent pregnancy. Lactation seems to be a factor in the causation of puerperal morbidity.

Malignant Growths of Uterus in Young Girls.—Hirst reports a case of malignant adenoma of the uterus occurring in a girl, aged 16.

Medullary Carcinoma of Ovary.—Sarnoff reports a case of medullary carcinoma of the ovary weighing 15 pounds (6.8 Kg.) in a girl, aged 15 years. One year following the operation there was no evidence of any metastatic process. The girl appeared to be in perfect physical condition, well developed and nourished, having regular normal menstrual periods.

American J. Roentgenol. & Radium Therapy, New York

21: 529-636 (June) 1929

Radium Treatment of Carcinoma of Cervix During 1927. H. H. Bowing and R. E. Fricke, Rochester, Minn.—p. 529.
Urethral Caruncle: Two Cases Treated by Radium. R. E. Loucks, Detroit.—p. 537.
Tumors of Salivary Glands: Sixty-Six Cases. B. F. Schreiner and W. L. Mattick, Buffalo, N. Y.—p. 541.
*Statistical Analysis of Radiation Treatment of Cancer of Breast on Basis of Saturation Technic: 412 Cases (1920-1928). G. E. Pfahler and B. P. Widmann, Philadelphia.—p. 546.
Roentgen Consideration of Temporomandibular Joint. P. A. Bishop, Philadelphia.—p. 556.
Visualized Esophagus in Diagnosis of Diseases of Heart and Aorta. L. G. Rigler, Minneapolis.—p. 563.
Lobar and Central Pneumonias in Children. F. B. Stephenson, Denver.—p. 571.
Tumors of Kidney. B. H. Nichols, Cleveland.—p. 582.

Radiation Treatment of Cancer of Breast on Basis of Saturation Technic.—Pfahler and Widmann have observed a definite improvement in the end-results following radiation treatment. The patients with recurrent glandular and mediastinal metastases show a postoperative life of forty-five months with irradiation, as compared with twenty-seven months when surgery alone is used. Those with inoperable primary growths show an average life of fifty-four months when treated by radiation, as compared with thirty-four months when no treatment is given. In an average of the statistics from ten clinics in which surgery and irradiation were used, there were 58.3 per cent three-year and 43.2 per cent five-year cures, as compared with the surgical results alone in thirty-two clinics in which there were only 38.6 per cent three-year cures, and 28.8 per cent five-year cures. This shows an improvement of 50 per cent in both the three-year and the five-year cures as a result of postoperative irradiation. As to the value of the saturation method, in the late operable group, there were 83 per cent three-year cures as compared with 68 per cent by previous methods, or a gain of 22 per cent; 82 per cent of the postoperative cases in this series showed gland involvement. The authors recommend irradiation in all cases of carcinoma of the breast, with or without surgery, according to the indications.

American J. Tropical Medicine, Baltimore

9: 223-276 (July) 1929

Protection Tests with Serum of Persons Recovered from Yellow Fever in Western Hemisphere and West Africa. N. P. Hudson, C. B. Philip and G. E. Davis, Baltimore.—p. 223.
Age and Sex Incidence of Deaths and Recoveries in Yellow Fever Epidemic in Department of Lambayeque, Peru, in 1921. H. Hanson, Pensacola, Fla.—p. 233.
*Necrosis of Liver in Malaria. O. Klotz, Toronto, Canada.—p. 241.
Chara Spp. and Other Aquatic Plants in Relation to Mosquito Breeding. R. Matheson and E. H. Hinman, Ithaca, N. Y.—p. 249.
Yellow Fever Transmission by Mosquitoes Other Than Aedes Aegypti. C. B. Philip, Lagos, Nigeria, West Africa.—p. 267.

Necrosis of Liver in Malaria.—Of twelve fatal cases of acute malignant malaria seen by Klotz, ten showed some degree of jaundice, and in eight it was well marked. Three of the eight cases showed well marked necroses of the liver. Klotz has noted the presence of similar necroses in a fatal case of blackwater fever.

Archives of Ophthalmology, Chicago

2: 1-122 (July) 1929

Lighting and Hygiene of Eye. C. E. Ferree and G. Rand, Baltimore.—p. 1.
Pigment Deposit in Contraction Furrows of Iris. A. B. Reese, New York.—p. 27.
Localized Area of Calcareous Degeneration in Sclera: Case. D. Katz, Chicago.—p. 30.
Transplantation of Temporal Half of Vertical Recti Tendons in Case of Complete Paralysis of External Rectus. B. W. Key, New York.—p. 39.
What Does a Test of Visual Acuity Measure? E. Freeman, Ithaca, N. Y.—p. 48.
Spontaneous Nystagmus: Ten Cases. I. Sommer, Vienna, Austria, and J. C. Yaskin, Philadelphia.—p. 57.
Myopic Problem. F. Poos, Münster, Germany.—p. 66.
Fitting of Artificial Eyes. P. Gougelmann, New York.—p. 76.
Two Unusual Experiences with Streptococcus Hemolyticus. H. M. Langdon, Philadelphia.—p. 80.

Archives of Pathology, Chicago

8: 1-170 (July) 1929

Fatal Case of Strongyloidosis in Man. W. Ophüls, San Francisco.—p. 1.
Malignant Rhabdomyoma of Left Leg. E. F. Hirsch, Chicago.—p. 9.
*Inguinal Lymphadenitis. R. D. Lillie, Washington, D. C.—p. 19.
Rhinosporidium Seeberi in Resident of United States: Case. M. C. Lincoln and S. M. Gardner, Chicago.—p. 38.
Primary Carcinoma of Lungs: III. Histogenesis and Metaplasia of Bronchial Epithelium. B. M. Fried, Boston.—p. 46.
*Multiple Hemangiofibroma of Pulmonary Valve. M. G. Bohrod, Chicago.—p. 68.
Simple Inexpensive Photomicrographic Apparatus. W. H. Feldman, Rochester, Minn.—p. 78.
Recent Work on Effects of Inanition and Malnutrition on Growth and Structure. C. M. Jackson, Minneapolis.—p. 81.

Inguinal Lymphadenitis.—Lillie analyzed twenty-nine cases and failed to see any difference between them and climatic bubo. He does not regard climatic bubo as a clinicopathologic entity. Climatic bubo, while probably commoner in the tropics, is not restricted to this geographic area.

Multiple Hemangiofibroma of Pulmonary Valve.—A case is reported by Bohrod in which four distinct tumor nodules were found on the ventricular surface of a cusp of the pulmonary valve. The tumors are considered to be true benign neoplasms, specifically hemangiofibromas. A review of the literature indicates that most, if not all, of the tumor-like endocardial structures previously classed by some authors as pseudomyzomatous, organizing thrombi, as well as the valvular tumors, are true neoplasms.

Archives of Physical Therapy, X-Ray, Radium, Omaha

10: 287-334 (July) 1929

Evaluation of Physical Therapy in Dermatology. A. E. Schiller, Detroit.—p. 287.
Prescribing Ultraviolet. G. B. Lake, Chicago.—p. 293.
Effect of Ultraviolet Light on Blood. P. H. Dorne, Chicago.—p. 296.
Value of Ultraviolet Irradiation in Dentistry. S. Wollenberger, Chicago.—p. 304.
Clinical Significance of Spirograms. P. Roth, Battle Creek, Mich.—p. 307.
Diathermy in Pneumonia. G. Clement, Duluth, Minn.—p. 315.

Delaware State M. Journal, Wilmington

1: 109-128 (July) 1929

Congenital Aniridia: Case. W. O. LaMotte, Wilmington.—p. 109.
Pyuria: Significance. L. W. Anderson, Wilmington.—p. 110.
*Cancer Survey in State of Delaware. J. W. Cox, New York.—p. 113.
Ages of Cancer Decedents. A. C. Jost, Dover.—p. 118.

Cancer Survey in Delaware.—Cox reports on a study of the cancer vital statistics of Delaware made by Dr. A. C. Jost, executive secretary of the Delaware State Board of Health. This study covers the deaths from cancer from 1921 to 1928 inclusive and embraces 1,613 deaths, 1,450 in white and 163 in colored persons. The cancer death rate for white persons increased from 72.8 per thousand deaths in 1921 to 99.8 in 1928. The cancer death rate for negroes during the same period increased only from 69.3 per thousand deaths to 75.9. The percentage of cancer deaths compared with the total deaths of thirty years and more has increased from 8.36 in 1921 to 9.56 in 1928.

Florida M. Assoc. Journal, Jacksonville

16: 13-46 (July) 1929

Surgical Treatment of Exophthalmic Goiter. J. S. Helms, Tampa.—p. 13.
Surgery in Diabetic. A. M. C. Jobson, Tampa.—p. 20.
Lower Back Pain in Male Persons. W. E. Whitlock, High Springs.—p. 23.
*Use of Insulin in Fattening Lean Individuals: Thirteen Cases. E. S. Nichol, Miami.—p. 29.
Gangrenous Vulvitis or Noma Pudendi. H. E. Palmer, Tallahassee.—p. 31.

Insulin Used in Fattening Lean Persons.—Insulin injections, together with high carbohydrate feeding, were used by Nichol in thirteen cases of chronic nondiabetic underweight persons, with or without associated visceroptosis, suffering from chronic exhaustion. Nine made a satisfactory gain in weight, with a definite improvement in the subjective symptoms. No loss of weight was observed during the month following the withdrawal of the insulin treatment.

Georgia M. Assoc. Journal, Atlanta

18: 286-340 (July) 1929

American Medicine and Young Graduates. S. Grave, Tuscaloosa, Ala.—p. 288.
Developing State of Well Being. O. W. Bethea, New Orleans.—p. 292.
Some Homely Truths About Heart. W. W. Jarrell, Thomasville.—p. 297.
Use of Quinidine in Treatment of Heart Disease. T. J. Charlton, Savannah.—p. 301.
Glaucoma Simplex. G. E. Clay and E. R. Vernou, Atlanta.—p. 306.
Glaucoma from Viewpoint of General Practitioner. F. P. Calhoun, Atlanta.—p. 308.
Our Poisonous Serpents. T. E. Oertel, Augusta.—p. 312.
Challenge of Industry to Present-Day Medicine. C. W. Roberts, Atlanta.—p. 317.
Kahn and Wassermann Tests: III. Studies on Comparative Results Obtained by Kahn and Wassermann Technic. P. Eaton and F. L. Damren, Augusta.—p. 325.

Illinois M. Journal, Oak Park

56: 1-76 (July) 1929

Some Present Dangers to Medicine. E. H. Ochsner, Chicago.—p. 47.
Medical Leadership in School Medical Inspection and Health Service. W. A. Howe, Albany, N. Y.—p. 53.
Barbituric Hypnotics in Prevention and Treatment of Rhinogenic Cocaine Intoxication. N. R. Guttman, Chicago.—p. 59.
Choice of Treatment in Gynecologic Inflammatory Lesions. R. L. Larsen, Evanston.—p. 62.
Ether Anesthesia in Tuberculous. E. B. Freilich and O. B. Ragins, Chicago.—p. 67.
Rôle of Urologist in General Diagnosis. H. L. Kretschmer, Chicago.—p. 69.

Journal of Pharmacol. & Exper. Therap., Baltimore

36: 251-505 (July) 1929

Water Metabolism and Related Changes in Fat Fed and Fat-Free Fed Dogs under Morphine Addiction and Acute Withdrawal. H. G. Barbour, L. G. Hunter and C. H. Richey, Louisville, Ky.—p. 251.
Solubility of Lead Salts in Physiologic Salt Solutions. L. C. Maxwell and F. Bischoff, Santa Barbara, Calif.—p. 279.
Action of Mercury on Heart. F. D. McCrea and W. J. Meek, Madison, Wis.—p. 295.
Effects of Long Continued Administration of Epinephrine. A. M. Affleck, Edinburgh, Scotland.—p. 301.
Investigation of Hypoglycemic Properties of Reglykol, Pancrepatine and Papaw. F. Bischoff, M. L. Long and M. Sahyun, Santa Barbara, Calif.—p. 311.
*Salicylates: XVIII. Actions of Ammonium Salicylate Compared with Sodium Salicylate. C. C. Johnson and P. J. Hanzlik, San Francisco.—p. 319.
Comparison of Various Lactones with Santonin: I. Studies on Chemical Constitution and Pharmacologic Action. W. F. von Oettingen, Cleveland.—p. 335.
Toxicity and Vermicidal Properties of Dilactone of Acetone Diacetic Acid and Beta Angelica Lactone in Cats. W. F. von Oettingen and F. Garcia, Cleveland.—p. 355.
Relationship Between Pharmacologic Action and Chemical Constitution and Configuration of Optical Isomers of Ephedrine and Related Compounds. K. K. Chen, C. Wu and E. Henriksen, Baltimore.—p. 363.
Experimental Cocaine Addiction. A. L. Tatum and M. H. Seevers, Chicago.—p. 401.
Antagonisms of Pilocarpine and Atropine and Pilocarpine and Hyoscyamine on Isolated Intestine of Cat. T. Exler and J. Van Niekerk, Leyden, Holland.—p. 411.
Nature of Strychnine Reversal of Ammonia Reflex in Rabbit. P. F. Swindle, Milwaukee.—p. 419.
Racial Differences as Illustrated by Mydriatic Action of Cocaine, Euphthalmine and Ephedrine. K. K. Chen and E. J. Poth, Baltimore.—p. 429.
Morphine Addiction and Physiologic Interpretation Based on Experimental Evidences. A. L. Tatum, M. H. Seevers and K. H. Collins, Chicago.—p. 447.
Effect of Some Opium Alkaloids on Intestinal Movements in Cats. N. B. Dreyer, Montreal.—p. 477.
Ouabain (g-Strophanthin or Acokantherin), Physiologic Standard for Digitalis, Strophanthus and Squill. E. W. Schwartze, R. M. Hann and G. L. Keenan, Washington, D. C.—p. 481.
Arthur S. Loevenhart, C. D. Leake, San Francisco.—p. 493.

Ammonium Salicylate Compared with Sodium Salicylate.—The actions of ammonium salicylate have been investigated by Johnson and Hanzlik and compared with those of sodium salicylate. The postulated greater pharmacologic actions of ammonium salicylate over those of sodium salicylate, from the conversion of the ammonium ion to urea and the liberation of free salicylate acid, with the possibility of the latter in acidotic tissues, were supported only by evidence of greater excretion of uric acid and total nitrogen in the urine and by a diuretic action in human subjects receiving 4 Gm. and clinical "toxic" doses of from 10 to 14 Gm. The two salicylates acted identically in experimental infections of rabbits; the minimum fatal doses in mice and rats were practically the same; i. e., about 0.6 Gm. per kilogram; the excretion of total salicyl in the urine of subjects was the same; i. e., about 80 per cent of the total administered; the clinical "toxic" doses were practically the same and agreed with the clinical "toxic" dose of sodium salicylate reported in the literature; i. e., about 10 Gm. The taste of ammonium salicylate was just as disagreeable as that of sodium salicylate. Consequently, ammonium salicylate, which is official in the United States Pharmacopeia, is merely another salicylate and there is no reason to believe that it possesses any special merits or advantages over sodium salicylate, or over other ammonium salts. It can be dispensed with from the materia medica.

New England J. Medicine, Boston

201: 151-200 (July 25) 1929

Retinal Hemorrhages of New-Born. M. F. Eades, Boston.—p. 151.
*Adenocarcinoma of Fundus of Uterus. J. V. Meigs, Boston.—p. 155.
Fundamental Nature of Relative Sterility. S. R. Meaker, Boston.—p. 160.
Surgical Diverticulitis. H. Rogers and R. H. Miller, Boston.—p. 162.
Report of Graduate Course in Cancer. F. G. Balch, G. H. Bigelow and R. B. Greenough, Boston.—p. 165.
*Cisternal or Suboccipital Puncture: 2,019 Punctures. H. C. Saunders and T. J. Riordan, New York.—p. 166.
*Thyroid and Headache at Menopause. N. C. Stevens, Glen Cove, L. I., N. Y.—p. 168.
Diagnosis of Active Tuberculosis in Infants and Children: Significance of White Blood Cells. K. D. Blackfan, Roxbury, Mass., and L. K. Diamond, Boston.—p. 170.
Surgical Complications of Respiratory Infection. J. S. Stone, Boston.—p. 172.

Adenocarcinoma of Fundus of Uterus.—Meigs found that twenty-five of 206 cases of proved adenocarcinoma of the fundus of the uterus showed metastatic cancer in the vagina. In ten of sixteen cases of vaginal metastases, radium treatment caused a disappearance of the growth; in six cases the growth was not favorably influenced by treatment with radium. Four out of twenty-four patients with proved adenocarcinoma of the fundus and metastatic nodules of cancer in the vagina are alive and well; one patient is alive nine years, one seven years, one five years and one seven months after treatment. One other patient treated with high voltage therapy is alive and well after five years.

Cisternal or Suboccipital Puncture.—Saunders and Riordan analyze the results of 2,019 punctures made in 539 patients, the greatest number in one patient being thirty-two. With the exception of four cases of epidemic meningitis and one of hydrocephalus, all the patients had or were suspected of having syphilis. Of the total number of punctures, 805 were made for routine fluid tests; 847 were made for drainage following intravenous therapy; forty-four were made in conjunction with lumbar puncture for comparative study of the fluids; 316 were for

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special fluid study; four were for the introduction of antimeningococcic serum, and one was for the introduction of a dye to determine the presence of a block. Because of the ease of performance and because of the lack of sequelae, resulting in nearly 100 per cent cooperation on the part of the patients, the authors have substituted the cisternal for the lumbar puncture as a routine measure.

Thyroid and Headache at Menopause.—Stevens says that many women between the ages of 45 and 60 suffer from recurrent headache, usually frontal. The vertex is also a common site. The headache is usually dull in character. It may occur every day or, more often, two or three times a week. Sometimes it is constant day and night. The pain, unlike that of migraine, is rarely severe. It is aggravated by fatigue and nervous tension. Vertigo is common. The memory may be impaired. Although usually of a phlegmatic appearance, these patients are extremely nervous; they are always tired. In cold weather they complain of an inability to keep warm. Even in mild weather their hands and feet remain cold. It appears that this condition resembles myxedema in its milder state. It is evidently a condition of hypothyroidism. The frequency of infections, and the increase of nervous tension, are factors contributing to the depression of the thyroid gland. Twenty-eight patients were given thyroid extract, which acts as a specific in the majority of cases. In only a minority has it had no beneficial effect. Stevens' practice, when the basal metabolic rate is definitely subnormal, has been to give 1 grain (0.065 Gm.) of thyroid twice a day for one week, then 1 grain a day for the next three weeks. In most cases the effect is striking: The headache disappears, the temperature rises, the skin becomes warm and moist, and energy returns.

New York State J. Medicine, New York

29: 857-918 (July 15) 1929

*Pigmented Growths of Skin; Significance and Treatment. A. B. Cannon, New York.—p. 857.
Rat-Bite Fever: Case. A. M. Dickinson, Albany.—p. 864.
Backache in Women from Orthopedic Standpoint. C. D. Reid, Syracuse. —p. 868.
*Relation of Arsenic to Public Health. C. N. Myers and B. Throne, New York.—p. 871.
Epilepsy and Convulsive State. S. Brock, New York.—p. 875.
Spontaneous Rupture of Heart Due to Coronary Disease. M. Packard and H. F. Wechsler, New York.—p. 883.
Personal Experience with Uterine Prolapse. G. B. Broad, Syracuse.—p. 885.
Practicing Physician in Public Health. J. N. Vander Veer, Albany.—p. 888.

Pigmented Growths of Skin.—Cannon reports that of three cases of proved melanocarcinoma removed with the endothermic knife by wide excision of the growth, the wound being left to granulate, there has been no evidence of recurrence in six and one-half, five and one-half and five years, respectively. A fourth case in which a tumor was removed four and one-half months before is also free from evidence of metastasis.

Relation of Arsenic to Public Health.—Myers and Throne review the results of eating fruits and vegetables contaminated by having been sprayed with insecticides containing arsenic. Recently the boll weevil control has made use of the airplane; the anophelene larvicide control has also made use of this method. The public at large is submitted to this same arsenic action. The use of insecticides combining copper, lead and arsenic is also a widespread source of contamination. The public at large eats the fruits and vegetables. The excretion of arsenic following the consumption of fruits, vegetables and fish is markedly increased, showing definitely that arsenic is passing into the circulatory system. Death from chronic arsenic poison has been noted eight years after the exposure. It is not uncommon to find clinical symptoms from two to six years after the exposure. Large expenditures of time and money have brought about widespread use of larvicides and insecticides; yet the public health has not been given adequate consideration, largely because of the choice of the lethal agent. Propaganda for the widespread application of these substances has resulted, followed by arbitrary methods of control based on inaccurate tolerance limits. In England one and one hundredth grain per pound and per gallon has been fixed arbitrarily to allow for the sale of these products. It is the opinion of the authors that no arsenic should be present as a contaminating factor in foods and drugs; that arsenic control is as important in vegetables as in fruits, and that either fewer fruits or less perfect fruits are preferable to contaminated fruits. Drastic measures will demand the elimination of arsenic as a contaminating factor and that arsenic and lead insecticides must be supplanted by safer agents. It is too early to evaluate the total destructive influence of these substances on human health. The time is not far distant when the importance of arsenic and its relation to health will be recognized and the regulatory procedures will be properly handled by the health service. Furthermore, the development of new destructive substances will demand a more careful study of health first and insecticide destroying properties secondarily.

Ohio State M. Journal, Columbus

25: 617-680 (Aug. 1) 1929

Mind and Body. J. J. Walsh, New York.—p. 621.
*Recognition of Typhoid. M. A. Blankenhorn, Cleveland.—p. 626.
Fractures of Os Calcis. H. R. Conn, Akron.—p. 629.
Diagnostic Value of Broncho-Esophagoscopic Examinations. H. G. Beatty, Columbus.—p. 634.
*Disinfection of Swimming Pools. F. M. Houghtaling, Sandusky.—p. 637.
Unusual Cancer Case. H. S. Noble, St. Marys.—p. 639.

Recognition of Typhoid.—Blankenhorn asserts that typhoid can be recognized by hospital interns promptly and efficiently, without more than ordinary dependence on laboratory aids, within the first three days in 87 per cent of cases. The disease is recognized in a patient complaining of fever, headache, malaise or pain in the abdomen in 81 per cent of cases; together with palpable spleen and abdominal signs each in 65 per cent of cases; fever in 100 per cent; slow pulse in 70 per cent, and absence of leukocytosis in 91 per cent.

Disinfection of Swimming Pools.—A brief summary of the operation of the water sterilization equipment at the swimming pool of the Sandusky Junior High School is given by Houghtaling with a comparison of results obtained with liquid chlorine, bleach and ultraviolet rays. He says that ultraviolet ray sterilization equipment is not safe to use alone in the sterilization of pool water. Water treated with the ultraviolet ray does not carry a "residual bacterial action." Chlorination apparatus properly operated will maintain an excellent pool water. Houghtaling insists that health authorities should be consulted on the design of the swimming pool, especially from the angle of water sterilization. State standards and requirements should be issued.

Pennsylvania M. Journal, Harrisburg

32: 687-748 (July) 1929

Present-Day Conception of Epilepsy. E. A. Strecker and T. S. Fay, Philadelphia.—p. 687.
*Management of Epilepsy: Diet. E. L. Bauer, Philadelphia.—p. 690.
Indications for and Relative Value of Drugs in Treatment of Epilepsy. G. Wilson, Philadelphia.—p. 692.
Frequency of Unrecognized Fractures of Vertebral Column. L. F. Stewart, Clearfield.—p. 695.
Fractures of Ankle. H. A. Smith, Wilkes-Barre.—p. 697.
Prognosis and Duration of Disability in Common Industrial Accidents. A. W. Colcord, Clairton.—p. 699.
Maxillary Diagnosis and Relationship to Focal Infection. M. S. Ersner, Philadelphia.—p. 703.
Psychology of Normal Child. H. V. Pike, Danville.—p. 708.
Dementia Praecox: Early Manifestations and Treatment. G. B. M. Free, Danville.—p. 711.
*Convulsions, Syncopal Attacks and Headache: All of So-Called Obscure Origin. J. D. Donnelly, Bala.—p. 713.
Diverticulum of Bladder with Calculi. O. E. Fox, Reading.—p. 717.
Pseudodiverticulum of Urinary Bladder. C. P. Henry, Reading.—p. 717.

Management of Epilepsy: Diet.—As the result of his experience in fifty cases, Bauer is convinced that the use of the ketogenic diet is incomplete, both in its hypothesis and in its execution as a relief for epilepsy. The ketogenic diet is cumbersome and burdensome, and necessitates altogether too much discomfort for the amount of good that follows its use. The limitation of diet and fluid intake at the same time, when measured in the instance of the diet by weight as compared with growth, and in the case of the fluid intake in its relation to brain edema, affords the easiest and most complete relief from unhappy symptoms and attacks.

Convulsions, Syncopal Attacks and Headache.—Seven cases of convulsions, syncope and headache in children are

reported by Donnelly which emphasize the necessity for repeated physical, neurologic, roentgen, dental and other special examinations in an effort to discover the cause. In the majority of the cases there was a toxic basis for the exciting cause. Rest in bed, a diet properly adjusted to meet individual needs, and elimination should be an important part of every treatment program. After children have been freed of their complaints, they should be kept under observation for years, if possible. Special treatment should be continued until they show ability to remain free from the causes which produced the conditions for which they came under treatment. Avoidance of fatigue, proper diet and elimination should be continued throughout their lives. They should have thorough physical and special examinations, as indicated from time to time, so as to prevent the development of new foci of infection and toxemia which might cause the recurrence of their convulsions, syncope or headache.

Philippine Islands M. Assoc. Journal, Manila

9: 199-228 (June) 1929

Tumors Among Filipinos: III. Hypernephroma. M. P. Mendoza-Guazon. —p. 199.

*Persistence of Nasal Lesions in Leprosy. J. G. Samson and C. B. Lara. —p. 201.

Laparotrachelotomy Versus Classic Cesarean Section During Labor. H. Acosta-Sison.—p. 209.

Persistence of Nasal Lesions in Leprosy.—Recent observations made in the Culion Leper Colony indicate that the nasal mucosa is the seat of persisting lesions in some cases that have been apparently cured under antileprosy treatment. As a basis for study, Samson and Lara surveyed the nasal lesions in 200 frankly positive cases of leprosy. The nasal septum was positive for *Myobacterium leprae* in 193 cases; the inferior turbinates, in 153 cases, and the nasal secretions, in 145 cases. Infiltrations and nodules, mostly at the junction of the bony and the cartilaginous portions of the septum and on the anterior portion of the inferior turbinates, were the most frequent lesions. Perforation of the septum, and ulcers, erosions or simple congestion of the septum or the turbinates alone were less frequent lesions. Only a few cases showed an apparently normal mucosa, but 50 per cent of these were also positive for *M. leprae*. Hypertrophy and atrophy of the inferior turbinates were also observed, but these conditions seldom gave positive bacteriologic results. All the other types mentioned were almost invariably found positive for *M. leprae*. The records of all examinations on 685 negative patients and negative candidates made by the Negative Examining Committee during a period of nine months were studied for the total and relative incidence of the different types of persisting nasal lesions, in each of ten examinations. The average proportion of cases found positive in the nasal mucosa in the ten examinations was 20.6 per cent. The proportion of cases found positive in both nasal mucosa and skin steadily decreased from 4.9 per cent in the first examination to 0.9 per cent in the sixth; in those found positive in the nasal mucosa but negative in the skin it steadily increased from 12.5 per cent in the first to 28.7 per cent in the sixth examination; in the negative mucosa-positive skin and negative mucosa-negative skin groups it remained fairly constant in the first five examinations. The steady increase in the positive mucosa-negative skin group is considered definite evidence of the tendency of the nasal lesions to persist after the cutaneous lesions have disappeared. The proportion of positive cases increased in the seventh to the tenth examination; this is attributed chiefly to the occurrence of relapses. The average proportion of cases showing a positive reaction only in the nose during the nine months' period was 17.4 per cent. Actually, of the 685 patients examined, 155, or 22.6 per cent, gave positive reactions only in the nose at least once, and 126, or 18.4 per cent, practically throughout the period. All the nasal lesions observed in frankly positive cases of leprosy were found to have their counterpart in the negative and near-negative cases. In these, the nodules constituted from 50 to 60 per cent of the nasal lesions, and the infiltrations, from 17 to 30 per cent. The rest presented varying degrees of congestion, erosion and ulceration of the nasal mucosa. Of the different types of positive nasal lesions, infiltrations, ulcers (and perforation) and nodules have been observed to persist for from a few weeks to six years after the cutaneous lesions had disappeared. In a small group of cases in which there was a relapse after a variable period of apparent inactivity, four times as many showed only nasal lesions as lesions that recurred only in the skin.

Public Health Reports, Washington, D. C.

44: 1657-1734 (July 12) 1929

Current Studies of Undulant Fever. H. E. Hasseltine.—p. 1659.

Study of Lead Poisoning in Storage Battery Plant. L. Greenburg, A. A. Schaye and H. Shlionsky.—p. 1666.

44: 1735-1818 (July 19) 1929

Typhus Fever in United States. K. F. Maxcy.—p. 1735.

Relation Between Mental and Physical Status of Children in Two Counties of Illinois. G. A. Kempf and S. D. Collins.—p. 1743.

Southern M. Journal, Birmingham

22: 603-694 (July) 1929

Poisonous Snakes and Antivenin Treatment. M. L. Crimmins, Fort Sam Houston, Texas.—p. 603.

*Treatment of Snake Bite. D. Jackson, San Antonio, Texas.—p. 605.

Ascariasis in Virginia. W. W. Cort, G. F. Otto and L. A. Spindler, Baltimore.—p. 608.

*Clinical Investigation of Pyelitis. R. P. Finney, Spartanburg, S. C.—p. 614.

Diphtheria in South Carolina During Years 1926 and 1927: 100 Deaths. J. A. Hayne, Columbia, S. C.—p. 617.

*Specific Action of Blood Transfusion in Hemolytic Anemia of Pregnancy. W. Allan, Charlotte, N. C.—p. 624.

Value of Child Training in Prevention of Mental Disorders. N. M. Owensby, Atlanta, Ga.—p. 629.

Repair of Cicatricial Ectropion by Free Dermic Graft. J. W. Taylor, Tampa, Fla.—p. 634.

Gold Sodium Thiosulphate in Maculo-Anesthetic Leprosy. J. L. Kirby-Smith, Jacksonville, Fla.—p. 637.

Congenital Hypertrophic Pyloristenosis. J. W. Landham, Atlanta, Ga. —p. 639.

Applied Anatomy of Back in Relation to Injury. R. W. Billington and R. S. Cunningham, Nashville, Tenn.—p. 643.

Anomalies of Spinal Column and Pelvis. J. M. Martin, Dallas, Texas. —p. 648.

Basic Principles in Public Health Field. J. A. Ferrell, New York.—p. 651.

*Sedimentation Rate of Erythrocytes. F. B. Johnson, Charleston, S. C. —p. 655.

Massive Collapse of Lung: Additional Case. C. T. Stone, Galveston, Texas.—p. 660.

Chronic Urticaria, A Thyro-Adrenal Syndrome. J. N. Roussel, New Orleans.—p. 668.

More Recent Deductions in Open Bone Operations. W. S. Nash, Knoxville, Tenn.—p. 673.

Importance of Tibials in Production and Recurrence of Clubfoot. J. W. White, Greenville, S. C.—p. 675.

*Comparison of Methods for Detection of Tubercle Bacillus: 500 Examinations. R. R. Kracke, Emory University, Ga.—p. 678.

Fractures of Spine. H. Thompson, Raleigh, N. C.—p. 682.

Treatment of Snake Bite.—The ideal treatment and the one that has yielded the best results, Jackson says, is as follows: All tight tourniquets should be released and replaced by one just tight enough to obstruct the lymph circulation and not the free venous return. Under procaine hydrochloride a large cross cut should be made at the fang marks. A circle of secondary cross cuts ¼ by ¼ inch should then be made about 3 inches from the original wound. In the small incisions, several hundred cubic centimeters of a 1 per cent salt solution should be injected and suction applied over the original cut to wash out dilute venom. This is continued for about one-half to one hour. If a vein is cut the hemorrhage is controlled, as it is bloody serum that produces the swelling, and blood must be conserved. Once every hour for from ten to fifteen hours suction is repeated for about twenty minutes, cupping being used over first one incision and then the other. A small rubber bulb with inverted glass funnel is usually used. However, a hyperemic cup or suction machine as used in tonsillectomy with an attached ear speculum is found useful. Quite a quantity of venom is diluted each hour and can be extracted. Fluid also leaks from the wound between extractions. If the swelling progresses, a bracelet of incisions is made around the highest point of the swelling, and new incisions are made where this fluid has collected in large quantities. In most cases treated by others, an insufficient number of incisions was made and suction was not continued for a sufficient length of time. Morphine or camphorated tincture of opium is given for pain; stimulants are administered when indicated, and hypodermoclysis and blood transfusions are resorted

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to if the patient comes to the physician late and shows extensive destruction of red cells with a count below 3,000,000. The hemoglobin and red blood cell counts are made every three hours, a saline cathartic is given and calonic irrigations of salt and sodium bicarbonate solution are given once every four hours. Between treatments, the limb is kept wrapped in hot fomentations, either mercuric chloride (1 to 10,000) and magnesium sulphate, or sodium citrate solution, to increase the outflow of venomous serum and help keep the wound from being infected.

Clinical Investigation of Pyelitis.—Two cases of ureteral regurgitation observed by means of the cystoscope and caused by traumatizing the posterior urethra are reported by Finney. It is felt that there may be a definite connection between this phenomenon and pyelitis.

Blood Transfusion in Hemolytic Anemia of Pregnancy.—Allan reports five cases in which blood transfusion after delivery had a specific curative action in the hemolytic anemia of pregnancy.

Sedimentation Rate of Erythrocytes.—The introduction of many modifications of the original method of determining the sedimentation rate of erythrocytes has caused considerable confusion in interpreting results by different workers. Efforts to correlate these methods have been made by Johnson, but have had little success owing to certain factors, such as the length of tube column of blood, the dilution of blood, the anticoagulant used, the temperature at which the test is carried out, and existing anemia, which all have an important effect on the rate and should be taken into consideration. The method of Plass and Rourke avoids some of the difficulties in regard to the variations in cell volume to plasma volume which would be found in anemia, and offers the method of choice, if all physicians could decide to adopt one method. The test is one of limited value. It is of most value to the gynecologist in indicating the favorable time for surgical intervention in pelvic inflammatory conditions, especially when the temperature, blood count and clinical observations fail. This test cannot, and should not, replace clinical methods or the blood count.

Comparison of Methods for Detection of Tubercle Bacillus.—Kracke has found Corper's method for the detection of the tubercle bacillus, which employs sulphuric acid concentration and crystal violet-potato medium, unsatisfactory. The fault of the method apparently lies in the method of concentration. In a series of 218 specimens of sputum from patients with clinically diagnosed pulmonary tuberculosis, the organism could be demonstrated in only 42 per cent by any of the three methods. The crystal violet-potato medium is an excellent medium and suitable for growing the tubercle bacillus because of its sensitivity, its inhibitory effect on gram-positive organisms and its ability to give a rapid growth of the tubercle bacillus. It is suggested that either the sodium hydroxide or the antiformin method be used for concentration and the medium described here be used for growing the organism.

Tennessee State M. Assoc. Journal, Nashville

22: 75-114 (July) 1929

Common Disorders of Biliary Tract: Diagnosis and Management. C. S. McVicar, Rochester, Minn.—p. 75.
Pan-Mural Fibrosis of Bladder: Treatment. T. D. Moore, Memphis.—p. 82.
Practical Results of Health Examination. S. F. McIntosh, Chattanooga.—p. 87.
Surgical Control of Tonsil and Adenoid Hemorrhage. F. E. Hasty, Nashville.—p. 91.
Ethics of Industrial Medicine. L. L. Sheddan, Knoxville.—p. 93.

Texas State J. of Medicine, Fort Worth

25: 201-258 (July) 1929

Removal of Hemorrhoids by Ligature Operation. H. T. Hayes, Houston.—p. 210.
Colon as Primary Focus of Infection in Causation of Disease. I. W. Jenkins, Waco.—p. 213.
Problems of Malaria Control in Tropical America. R. C. Connor, New York.—p. 219.
Undulant Fever. C. T. Stone, Galveston.—p. 225.
Detection of Typhoid Carrier. S. W. Bohls, Austin.—p. 229.
Choice and Method of Use of Drugs in Heart Disease. C. W. Barrier, Fort Worth.—p. 231.
Pyelitis in Infants. H. L. Moore, Dallas.—p. 236.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

2: 37-80 (July 13) 1929

Gallbladder in Relation to Focal Infection. D. P. D. Wilkie.—p. 37.
"Virgin Soil" and After. S. L. Cummins.—p. 39.
Radiational Treatment of Corneal Ulcers. W. S. Duke-Elder.—p. 41.
Foci and Nature of Infection in 100 Cases of Rheumatic Conditions. E. C. Lowe.—p. 43.
*Congenital Diaphragmatic Hernia. G. D. F. McFadden.—p. 45.
Meningocele: Case. B. P. Pick.—p. 46.
*Impacted Cyst in Third Ventricle of Brain: Two Cases. A. M. Drennan.—p. 47.
*Early Diagnosis of Pernicious Anemia by Halometer. F. C. Eve.—p. 48.
Ligature of Innominate and Common Carotid Arteries for Subclavian Aneurysm. C. L. G. Chapman.—p. 49.
Renal Abnormality. C. R. Nunan.—p. 50.
Intravenous Antitoxin in Outbreak of Scarlet Fever in Public School. H. S. Banks.—p. 50.
*Antimony Treatment of Acne Rosacea. L. W. Bain.—p. 51.

Congenital Diaphragmatic Hernia.—Although the opening in the case reported by McFadden was evidently congenital, the patient had no symptoms referable to it till he was 4 years old. The symptoms were all referred to the abdomen. The hernia was situated on the left side at the point at which the two embryonic migratory muscle elements meet. There was no peritoneal sac. The contents consisted of small and large intestine and omentum. The stomach and spleen were in their normal position. The pleural cavity was opened without respiratory disturbance due to mediastinal adhesions. The lung reexpanded without positive intratracheal pressure, and in spite of the irritation of that half of the diaphragm as a result of the surgical intervention.

Impacted Cyst in Third Ventricle of Brain.—Drennan reports two cases of cyst of the choroid plexus in the third ventricle. Both patients died within a short time. One patient was a girl, aged 19, with a history of headaches at intervals and attacks of faintness, the first said to have been about two years previously. One night she complained of pain in the head. About 6 a. m. she became unconscious and died soon afterward. At the necropsy a cyst of the choroid plexus blocking the third ventricle, acute hydrocephalus and acute cerebral edema were found. The second patient was a man, aged 23, unmarried, in whom no history was obtainable of fits or illnesses of any kind. The family history was not good; his mother was said to have been a prostitute; one of his brothers was in an asylum with paresis, and another brother was known to be addicted to drink. He was apparently in good health when he retired to bed. At 6:30 the following morning he was found lying on his bed, groaning and barely conscious. About a quarter of an hour later he was dead. The necropsy observations were the same as in the first case.

Early Diagnosis of Pernicious Anemia by Halometer.—Eve describes the halometer as an instrument designed to enable the practitioner to measure the average size of the red cells quickly and easily, and thus to make an early diagnosis of pernicious anemia and allied conditions. It consists of a tiny electric bulb of which the illumination (by a battery included in the instrument) is regulated by a graduated switch until it is just white and no longer reddish. The whole is encased in a small black box with a hole at one end against which the blood smear is clipped and through which the light is then seen surrounded by a colored halo. To facilitate the estimation of the diameter of the halo, it is duplicated by reflection from a pair of inclined mirrors, and the movement of a knob along a scale at the side of the box causes the halos to approach each other until their red edges are just brought into contact. The scale now records a measure of the diameter of the halo. The calibration gives the angular measure of the halo, but the reading can be converted into the average size of the red cells by reference to a printed table. Except for comparison with other methods this is redundant, as the limits of normal blood are clearly indicated on the scale. Eve has used the instrument for measuring the corpuscles in cases of pernicious anemia and has found it an extremely valuable aid in making a diagnosis.

Antimony Treatment of Acne Rosacea.—Bain has used antimony tartrate, one-sixteenth grain (4 mg.) in half an ounce

of water three times a day after meals, successfully in the treatment of acne furunculosis and leg ulcers.

2: 81-130 (July 20) 1929

National Inquiry into Causes of High Maternal Mortality Rate. T. W. Eden.—p. 81.
*Bactericidal Power of Blood During Pregnancy and Puerperium. D. Miller and J. R. Whitaker.—p. 85.
*Puerperal Morbidity Rate in Patients Delivered Normally. A. M. Claye. —p. 90.
Microscopic Examination of Material Containing Filtrable Viruses and Limits of Visibility. A. C. Coles.—p. 91.
Cardiac Syphilis with Ventricular Aneurysms: Case. H. Cookson.—p. 94.
Problems Presented by School Preventive Medicine in Rural Areas. A. C. T. Perkins.—p. 95.
Optic Neuritis and Dental Sepsis. E. T. Smith.—p. 99.
Perforation of Gastric Ulcer in Septuagenarian. J. Price.—p. 100.

Bactericidal Power of Blood During Pregnancy and Puerperium.—Miller and Whitaker found considerable individual variation in resisting power to infection as determined by Wright's "slide-cell" method of estimating the degree of bactericidal power of the blood. This variation is more marked in the pregnant than in the nonpregnant individual, and appears to bear a definite relationship to the development and course of puerperal infection. There is during pregnancy a gradual increase in the bactericidal activity of the blood, which reaches its maximum at or about the time of delivery and thereafter rapidly subsides. The bactericidal power of the blood at the full term of pregnancy considerably exceeds that of the nonpregnant person. The antibacterial activity of the blood does not materially differ in the nulliparous as compared with the multiparous pregnant or nonpregnant person. This property, however, appears within limits to be depressed by the albuminuria of pregnancy, prolonged labor, instrumental delivery and severe loss of blood. While there is a broad parallelism between variations in the bactericidal activity of the blood and the leukocyte count, the relationship is not a constant one, and the increase in bactericidal power which occurs during pregnancy is probably due to factors other than, or in addition to, a mere numerical increase in white cells.

Puerperal Morbidity Rate in Patients Delivered Normally.—Claye states that the morbidity rate of patients examined vaginally was almost twice that of patients examined only abdominally and rectally, and the morbid plus the subnormal rate of those examined vaginally was nearly one and a half times as great as that of patients not so examined. He advocates making only rectal examinations, except (1) in cases of antepartum hemorrhage; (2) when it is important to know the exact size of the os, and this cannot be gaged from the rectum, which occurs usually in cases of breech presentation; (3) when a physician is called in by a midwife or another physician to a patient he has not seen before, and he cannot decide on the proper treatment without vaginal examination, and (4) when operative treatment is indicated.

Lancet, London

2: 159-208 (July 27) 1929

Debt of Modern Surgery to Ancillary Sciences. A. H. Burgess.—p. 159.
Congenital Cardiac Disease. M. E. Abbott.—p. 164.
*Bacteriologic Diagnosis of Whooping Cough. H. Sugare and J. W. McLeod.—p. 165.
Management of Psychoses of Middle Life. I. Skottowe.—p. 167.
Meinicke Microreaction. G. de M. Rudolf.—p. 170.
*New Method of Making Permanent Suprapubic Opening. W. C. Morton. —p. 170.
Hepatic Amebiasis Simulating Cholecystitis. I. MacDonald.—p. 171.
Improved Artery Forceps. H. Donovan.—p. 172.
Labor Saver in Examination of Urine. G. R. Phillips.—p. 172.

Bacteriologic Diagnosis of Whooping Cough.—The Bordet-Gengou bacillus was successfully isolated by Sugare and McLeod in twelve of twenty-one cases of whooping cough and in all of five cases examined within the first week of the disease. Secretions taken from the larynx, trachea, bronchi and lungs of fifty children under 10 years of age dying from diseases other than whooping cough and cultivated on Bordet-Gengou medium were not found to contain *Bacillus pertussis*, although *B. influenzae* was quite often detected in them. The authors assert that the bacteriologic diagnosis of whooping cough if generally adopted would probably be found to be easier and more exact than that of diphtheria and could be of practical service to the community.

New Method of Making Permanent Suprapubic Opening.—Morton discusses an operation which aims at making a permanent opening lined by a tubular graft of the prepuce. In a case cited, an incision was made through the abdominal wall into the bladder. Into this upper wound the temporary bladder drain was placed. The prepuce, having been drawn out fairly tightly, was encircled by an incision about halfway along its length, dividing only the outer skin of the prepuce. The distal cuff of skin was then drawn forward, making a long tube, lined by skin on its inner side. This tube was to be made to lie in the substance of the abdominal wall from the skin to the mucous membrane of bladder. The elongated cuff of prepuce was drawn through the prepared track and fixed by six fine catgut stitches accurately to the bladder edge. The old abdominal wound was stitched closely up to the preputial tube and that portion of proximal preputial outer skin left covering the glans was easily stitched to the abdominal skin at the margins of the old suprapubic wound, drawing the glans fully up to the abdomen. Some edema of the prepuce developed outside the abdominal wall, but no evidence of impending gangrene. After fourteen days a circumcision was performed and the penis allowed to fall back. In three days the tube in the upper suprapubic wound was removed and another smaller tube placed along the new track, now fully lined by preputial skin. In ten days the upper suprapubic wound was completely closed by natural means. For three or four weeks the preputial graft remained swollen and edematous; after that time it became normal and has shown very little, if any, signs of contraction. The skin-lined track has certainly become much narrower but no more than is necessary to keep it watertight. The result has been very gratifying.

Annales de l'Institut Pasteur, Paris

43: 547-672 (May) 1929

Bacterial Decomposition of Cellulose in Soil. S. Winogradsky.—p. 549.
*Vaccination Against Tetanus. P. Descombey.—p. 634.
Action of Diastases and Soluble Bacterial Factors on Hatching of Inactive Eggs of Mosquito of Yellow Fever. E. Roubaud and J. Colas-Belcour.—p. 644.
Changes in Nerves in Artificial Tumor. M. Marullaz.—p. 656.
*Antirabic Vaccination at Pasteur Institute of Paris in 1928. J. Viala. —p. 668.

Vaccination of Guinea-Pig Against Tetanus.—Descombey states that experimental facts show that regardless of the mode of injection of tetanus anatoxin in guinea-pigs, immunity to tetanus develops. In none of his experiments was the author able to demonstrate local tissue immunity in the brain and in none of them did he note a single fact that would make him admit an excessive production of antitoxin on the part of the nerve centers. Antitetanus immunity depends solely on the presence of specific antitoxin in the organism. He emphasizes the fact that not only is it not necessary to place the antigen directly in contact with the nerve centers to render them refractory to the injection of tetanus toxin but the best way to accomplish this is to inject the antigen subcutaneously.

Antirabic Vaccination at the Pasteur Institute of Paris in 1928.—Viala presents a tabular study of the antirabic vaccinations performed at the Pasteur Institute in 1928. None of the 671 persons given antirabic treatment died.

Bulletin de la Soc. d'Obst. et de Gynéc., Paris

18: 311-394 (May) 1929

*Radium Treatment of Postoperative Recurrent Cancer of Cervix. J. Gagey.—p. 312.
*Treatment of Cancer of Cervix. H. Rubens-Duval.—p. 315.
Rectovaginal Fistula Following Tuberculous Salpingitis. R. Dupont.—p. 318.
Concomitant Tuberculosis of Adnexa, Cecum and Appendix. Devraigne, J. C. Bloch and M. Mayer.—p. 321.
Torsion of Large Ovarian Cyst After Labor. P. Brocq.—p. 323.
Colibacillary Septicemia Following Hysterectomy. De Peretti de la Rocca. —p. 325.
*Rupture of Uterus at Term Before Labor. Devraigne and Cohen-Deloro. —p. 327.
—p. 331.
*Rupture of Uterine Varix During Pregnancy. Modiano.—p. 332.
Diffuse Purulent Peritonitis of Unknown Origin Before Labor. P. A. Petridis.—p. 334.
Puerperal Scarlet Fever. L. Devraigne, L. Baize and M. Mayer.—p. 337.
Peritoneal Pregnancy Secondary to Tubo-Abdominal Abortion. R. Alvarez.

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Late Results of Radium Treatment of Postoperative Recurrent Cancer of Cervix.—From 1919 to 1922 Gagey used radium in the treatment of forty-two patients with postoperative recurrent cancer of the cervix. Of the thirty-one patients that were followed regularly, ten (32 per cent) died within one year, thirteen (42 per cent) within two years, four (13 per cent) within three years and one (3 per cent) within four years. Three of the patients are still free from recurrences eight years after the radium treatment of postoperative recurrent cancer of the cervix.

Treatment of Cancer of Cervix of Uterus.—Rubens-Duval states that the fact that radium treatment of operable cancer of the cervix in no way interferes with, but rather favors, subsequent hysterectomy and the fact that radium treatment of postoperative recurrences is difficult are arguments in favor of the initial treatment of cancer of the cervix with radium.

Insidious Rupture of Uterus at Term Before Labor.—Devraigne and Cohen-Deloro report a case of insidious rupture of the uterus at term before labor in a woman in whom a high cesarean section had been performed three years previously. At operation it was found that the site of rupture corresponded to the old cesarean section scar. On the basis of this and another similar case the author advocates low cesarean section.

Rupture of Uterine Varix During Pregnancy.—Modiano reports a case of profuse intra-abdominal hemorrhage in the seventh month of pregnancy, following the rupture of a large uterine varix. The author states that in a search of the medical literature he was unable to find the report of a similar case.

Journal de Chirurgie, Paris

33: 609-768 (May) 1929

*Safe Method for Cure of Aneurysm of Bifurcation of Common Carotid Artery. D. Petit-Dutaillis.—p. 609.
*Suture of Ureter. R. Gouverneur and H. Marion.—p. 621.

Safe Method for Cure of Aneurysm of Bifurcation of Common Carotid Artery.—Petit-Dutaillis describes the various methods used in the treatment of aneurysm of the bifurcation of the common carotid artery and points out the danger of cerebral accidents following their use, because of the ligation of the internal carotid artery. In order to eliminate the danger of cerebral anemia on the side operated on, he devised an operation that insures an adequate supply of blood to the brain on the affected side. He first ligates the external and internal carotid arteries just above the aneurysm, clamps the arteries distal to the ligatures and divides them between the ligatures and the clamps. He then performs an end-to-end anastomosis between the external and internal carotid arteries. The operation is completed by ligating the common carotid artery proximal to the aneurysm and then extirpating the sac. Following this operation blood passes from the external carotid on the opposite side, through natural anastomoses in the midline, to the external carotid on the affected side; from here it passes through the artificial anastomosis into the internal carotid and up into the cerebral hemisphere. The author's technic is fully illustrated by diagrams and drawings.

Dilatation of Ureter Following Suture.—In an attempt to explain the poor clinical results of suture of the divided ureter, Gouverneur and Marion studied the functioning of the ureter in ten dogs, following suture. They found that after section of the ureter it is not paralyzed; the upper end contracts and forces out the urine in it; the lower end is likewise the seat of movements which, however, are independent of the movements in the renal end. The suture of the divided ureter does not restore its normal functioning and the peristaltic wave does not pass from the upper to the lower segment but stops at the zone of suture. In a ureter sutured eight days previously and in which the suture was perfectly permeable, the authors still observed peristaltic waves but they were weaker than normal and the two ends contracted independently of each other, the renal end always contracting more feebly than the vesical end. In another dog in which the ureter had been divided and sutured eight days previously, the suture had cicatrized perfectly; the exact zone where it had been made could be discerned only by reason of the change in the size of the ureter at that point. The renal end appeared distended, at least three times larger than the vesical end, and the pelvis of the kidney also was dilated. One could see peristaltic waves start from the pelvis and stop abruptly at the level of the suture, increasing momentarily the size of the renal end. The vesical end was not paralyzed; contractions occurred in it but they occurred less frequently than the contractions in the renal end and the contractions in the two ends of the ureter were not synchronous. Sometimes the contraction of the vesical end interfered with the passage of urine from the upper to the lower end. Nevertheless a number 14 urethral sound was easily passed through the ureter and in passing from the bladder to the kidney not even the slightest resistance was felt at the level of the suture; there was not the slightest degree of stricture to explain, according to the mechanical conception, the hydronephrosis that had developed. In order to prove that the dilatation of the ureter above a suture is of functional rather than mechanical origin, the authors performed another series of experiments in which they merely denuded a segment of the ureter. As in the first series of experiments they noted a dilatation of the ureter above the part that was denuded and an accompanying hydronephrosis. From the results of these experiments the authors conclude that the ureter is a delicate muscle-nerve apparatus; a section, a circular denudation, a circular compression and probably other causes arrest the normal peristalsis of the tube and it dilates from below upward. The resulting state of inertia produces hydronephrosis secondarily and this explains the limited duration of a kidney with a sutured ureter.

Paris Médical

1: 101-132 (Feb. 2) 1929

*Star-Shaped Image: A Direct Sign of Gastric Ulcer. Carnot and Dioclès.—p. 101.
*Roentgen Treatment of Obliterative Arteritis. L. Delherm and H. Beau.—p. 104.
*Total Roentgenography. J. Belot.—p. 106.
Roentgen Picture in Bronchiectasis. P. Duhem.—p. 110.
Systematic Roentgen Examination of Lungs of Persons with Negative Clinical Examination. J. Quivy.—p. 111.
Interpretation of Roentgenograms. J. Thoumas.—p. 113.
*Practical Method of Cineroentgenography. B. E. Luboshez.—p. 117.
Variable Factors in Roentgenography. A. Dognon.—p. 118.
Use of Iodized Oil in Roentgen Diagnosis of Sterility in Women. R. Ledoux-Lebard and C. Béclère.—p. 120.

Star-Shaped Image: A Direct Sign of Gastric Ulcer.—Carnot and Dioclès call attention to the fact that by compressing the stomach during roentgen examination one frequently obtains a star-shaped image at the site of an ulcer. This direct sign of gastric ulcer results from the presence of the contrast medium between the folds of mucosa radiating from the ulcer. The examination is made with the patient standing and the compression of the stomach is effected by means of a special apparatus devised by one of the authors. With this apparatus the stomach can be compressed until the folds of the mucosa are clearly visible. The authors give their technic for the roentgen demonstration of gastric ulcer by means of compression of the stomach during roentgen examination and point out the advantages of an exact preoperative localization of gastric ulcer.

Roentgen Treatment of Obliterative Arteritis.—Delherm and Beau state that in some cases of obliterative arteritis the condition of the patient can be considerably improved by roentgen irradiation of the vertebral region (between the tenth thoracic and the fifth lumbar vertebrae for the lower extremities). Short series of roentgen irradiations of medium penetration should be separated by intervals of at least a month or six weeks to avoid habituation of the organism to the roentgen rays. Between the series of roentgen irradiations of the spinal region the authors use diathermic treatment of the extremities.

Single Roentgenogram of Entire Body.—Belot gives his technic for making roentgenograms of the entire body on one film. The principle of the method consists in obtaining a roentgenogram of the entire body on a single film and with a single and rapid exposure. The method, therefore, has nothing in common with the method that consists in making roentgenograms of various portions of the body on a series of separate films and putting them together on a single positive. With the latter method deformations are produced and the final picture is imperfect; the time required and the material used render

this method unpractical. With total roentgenography one explores, at one operation, the entire skeleton, or, more exactly, the entire body of the person examined. With a suitable exposure one obtains not only all the details of the skeleton but also the ensemble of the thoracic and abdominal organs.

Practical Method of Cineroentgenography.—Luboshez describes a practical method for making motion pictures during the roentgenoscopic examination of a patient. He states that the fundamental problem in cineroentgenography consists in obtaining, without injury of the patient, a series of sixteen images a second on a strip of film. The roentgen machines now in use are adequate for this purpose. The indirect method, consisting in photographing the fluorescent screen by means of an optical system devised by the author, is to be preferred to the direct method, which necessitates the setting in motion of large films and screens. In the indirect method there are the following four units of apparatus: the fluorescent screens, the photographic film, the machine for taking the pictures and the optical system. The length of the exposure of the patient to the roentgen rays should not exceed four or five seconds. The short piece of film exposed during this time is then reproduced several times, by impression on the positive film, in order to permit a sufficiently long examination during the projection.

Presse Médicale, Paris

37: 797-812 (June 19) 1929

*Surgical Treatment of Ulcers of Lesser Curvature of Stomach. A. Gosset and G. Loewy.—p. 797.
Diffuse Subacute Encephalomyelitis and Epidemic Lethargic Encephalitis. C. V. Economo.—p. 798.
Lung Abscess and Interlobar Pleurisy. G. Paisseau, S. Vialard and V. Oumansky.—p. 800.
*Radium Treatment of Cutaneous Angiomas. E. Wallon.—p. 803.

Surgical Treatment of Ulcers of Lesser Curvature of Stomach.—From the study of late results obtained in the surgical treatment of 178 patients with ulcer of the lesser curvature of the stomach, Gosset and Loewy conclude that in cases in which the crater is small and the induration is not marked, gastroenterostomy alone or gastro-enterostomy with excision of the ulcer is indicated, even when hemorrhage is present. The object of gastro-enterostomy is twofold: it not only provides for a free drainage of the stomach but, in addition, places the pylorus in a state of rest by suppressing its spasm. In callous ulcers with extensive induration, large craters and hard lymph nodes, gastrectomy is indicated.

Radium Treatment of Cutaneous Angiomas.—Wallon states that after the application of radium, particularly after a radium puncture, there is a slight increase in the volume of a cutaneous angioma as a result of the congestive reaction. It is advisable to inform a child's parents of this reaction. After ten days there is a progressive decrease in the volume of the tumor. At the same time the intensity of its color decreases. The surface is sometimes covered by a fine desquamation. The action continues for several weeks or even for several months. One should not consider a new application until about three months has elapsed. By proceeding in this manner one obtains a complete disappearance of the lesion, with either a perfectly supple, almost colorless scar or no scar at all. The author emphasizes the fact that one should not attempt to obtain a complete result immediately. One should consider the long work of tissue changes under the influence of radium. In the treatment of infants one should watch for the regression of the angioma and complete the esthetic result by a retouch at a later date.

Revue de Chirurgie, Paris

67: 93-195, 1929

*Significance of Bacteremia in Acute Intestinal Stasis. É. Aubertin and J. Magendie.—p. 93.
*Isolated Closed Fractures of Transverse Processes of Lumbar Vertebrae. J. Chavannaz.—p. 121.

Significance of Bacteremia in Acute Intestinal Stasis.—According to Aubertin and Magendie the bacteria that circulate in the blood in acute intestinal stasis are most frequently strict anaerobes. Apparently they are rapidly destroyed in the oxygenated blood because they are detected with difficulty even by modern methods of hemoculture. They apparently originate from the intestine. Intestinal stasis alone, however, does not suffice for their passage into the circulating blood; at least microscopic lesions in the wall of the intestine must be present. It is the peritoneum much more than the capillaries or the intestinal lymphatics that resorbs them. Their passage into the blood does not produce signs of a true septicemia or of a septicopyemia. It constitutes the fugacious bacteremias which must be detected by hemoculture and which do not have a clinical history. In the cases observed, their presence apparently did not influence the course of the disease and complications were not observed. These researches in the blood should be completed by researches (much more important and difficult) in the liver, the spleen and the various organs that serve as a filter for bacteria. In the cases observed by the authors the demonstration of bacteria in the blood during acute intestinal stasis seemed to be without great prognostic value.

Isolated Closed Fractures of Transverse Processes of Lumbar Vertebrae.—Chavannaz presents the results of his study of 128 cases of fractures of the transverse processes of the lumbar vertebrae. He states that this type of fracture is not rare. It usually occurs in men aged from 20 to 45. Miners are particularly exposed to these fractures. The pathogenesis varies according to the cases considered. Although in the classic picture the fracture of only one transverse process is present, several fractures may be present (thirty-three out of 128 cases observed) and the lesion may even be bilateral (six out of 128 cases observed). The symptoms vary greatly and the clinical diagnosis of isolated fractures is difficult. The condition is most commonly confused with lumbago, anomalies of ossification or pseudofractures of the transverse processes and with fracture of the body of the vertebra. Roentgenologic control is indispensable but does not eliminate the possibility of error in the diagnosis. The prognosis with regard to function is good as a rule; in the majority of cases healing is obtained in a few weeks by rest in bed. Occasionally permanent incapacity due to painful disturbances has been noted. The most serious fractures of this type are the ones that involve the transverse processes of the fourth and fifth lumbar vertebrae. Persistent pain constitutes an indication for surgical intervention; the technic of resection of the transverse process of a vertebra is simple and the result as a rule is excellent.

Revue Française de Pédiatrie, Paris

5: 145-291 (April) 1929

Vaccination in Whooping Cough. T. Madsen.—p. 145.
*Convulsions in the New-Born. R. Waitz.—p. 171.
*Leukocyte Picture in Measles. S. Olechnowiez.—p. 209.
Protein Fever in Nurslings. L. Bytch.—p. 215.
Gonorrheal Arthritis in the New-Born. S. A. Kostitch-Yoksitch.—p. 221.

Convulsions in the New-Born.—Waitz observed motor disturbances, contractions or convulsions during the first few days of life in nineteen of 1,471 new-born infants. From the study of these cases he draws the following conclusions: 1. Diseases of the mother during pregnancy, toxic and infectious diseases of the parents (particularly syphilis) and nervous heredity play only an unimportant rôle in the etiology of convulsions in the new-born. In this condition only obstetric factors rendering childbirth more difficult and more dangerous and the infant less resistant are involved; some of these obstetric factors are primiparity, contracted pelvis, twins, breech presentation, protracted labor, premature rupture of the membranes, interventions and prematurity or postmaturity of the fetus. Clinical syndromes, as fetal suffering in utero (42 per cent of the cases) and especially the condition of apparent death at birth (64 per cent of the cases), frequently precede the convulsions. 2. Clinically the motor disturbances appear most frequently after a free interval of from two to four days and include permanent contractions and convulsions. Permanent contractions are exceptional (one case out of 191). Convulsions are much more common (eighteen out of nineteen cases); they are either clonic (56 per cent) or tonic (17 per cent). To the tonic forms belong the incomplete forms (27 per cent), in which are included ocular convulsions, conditions of muscular hyperexcitability and sudden death. The tonic and clonic forms cannot be differentiated clinically and sometimes alternate. The convulsive crises are frequently accompanied by paroxysmal

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cyanosis and by contraction; the contraction often persists longer than the crises. In only exceptional cases do the convulsions remain isolated. In most of the cases there are associated symptoms: tension of the fontanels, vomiting, disturbances in the weight curve and especially disturbances in the thermal equilibrium (hyperthermia in 68 per cent of the cases and hypothermia in 5 per cent of the cases). In this condition recovery is the rule; after two or three days the attacks become less frequent and diminish in intensity. 3. Lumbar puncture reveals an abundant and frequently hemorrhagic cerebrospinal fluid. Cytologic and chemical examination of the cerebrospinal fluid nearly always shows that acute edema of the meninges is present. The convulsions correspond to the lesions themselves and particularly to their evolution and to the subsequent aseptic meningitis. 4. Postmortem examination in the fatal cases reveals the existence of cerebromeningeal lesions associated with labor and the impossibility of establishing localization syndromes. 5. The immediate mortality in convulsions in the new-born is 26 per cent. Subsequently the infarct remains exposed to all the sequelae of the cerebromeningeal lesions associated with the delivery and even to the sequelae of other visceral lesions. This is true regardless of the clinical form of the convulsions. 6. In the cases observed by the author the convulsions that occurred in the new-born during the first days of life were only a symptom of cerebromeningeal lesions that were produced during labor. The author emphasizes the fact that in the newborn infant during the first few days of life there are no essential convulsions and no convulsive reflexes; all the convulsions that occur at this time are symptomatic of meningeal lesions.

Leukocyte Picture in Measles.—In 274 examinations of the blood in thirty-two infants and children with measles, Olechnowiez found that the leukocyte picture was a valuable aid in the diagnosis and prognosis. The kind and the number of leukocytes in measles vary as follows: In the incubation period hyperleukocytosis and slight displacement of the neutrophils to the left are present and eosinophilia is common. In the period of invasion there are leukopenia, displacement of the neutrophils to the left and decrease or absence of eosinophils. In the period of eruption, leukopenia and displacement of the neutrophils to the left are present in the benign cases in which the prognosis is good, and hyperleukocytosis, hyperlymphocytosis and a decreased number or absence of monocytes and eosinophils are present in the severe cases in which the prognosis is bad. In the posteruptive period there are slight leukocytosis, slight lymphocytosis or normal lymphocythemia and an increased number of eosinophils and monocytes. In measles in children aged less than 4 years, the leukocyte picture is variable.

Clinica Pediatrica, Modena

11: 387-489 (May) 1929. Partial Index

*Inhalations of Irradiated Air and Milk Production. U. Ferri.—p. 387.
*Colloidal Stability of Blood Serum in Various Stages of Gastro-Enteritis in Infants. A. Simonini.—p. 420.

Inhalations of Irradiated Air and Milk Production.—In ten of eleven nursing mothers with scanty production of milk whom Ferri treated with inhalations of irradiated air, there was a remarkable and permanent increase in the milk production. This increased production continued even for a long time after the treatment had been discontinued. The milk production increased from a minimum of 21 per cent to a maximum of 60 per cent, as compared with the daily production of the week preceding the treatment. With the increase in the quantity of the milk, the percentage of its principal elements (fat, lactose and protein) did not show harmful changes. This fact was proved both by chemical examinations of the milk and by the increase in the infants' weight, and their good nutritional condition and health. The author gave the inhalations of irradiated air every other day for three weeks. The treatments were given according to Spolverini's method (*Policlinico* **34:** 1615 [Nov. 7] 1927; abstr. THE JOURNAL, Jan. 28, 1928, p. 334.

Colloidal Stability of Blood Serum in Various Stages of Gastro-Enteritis in Infants.—In his studies of the colloidal stability of the blood serum in infants with gastro-enteritis, Simonini classed the patients in three groups. The patients who were in the first stage of the disease were placed in the first group; the patients in the acute stage of the disease (with many stools) were placed in the second group, and the convalescent patients, regardless of whether they had been treated by hypodermoclysis were included in the third group. The colloidal stability of the blood serum in infants of the first group is good; in the second it is bad, and in the third group it may be comparable to that of the first group. In all groups hypodermoclysis with physiologic solution of sodium chloride increased the colloidal stability and returned the colloidal equilibrium to normal.

Pediatria, Naples

37: 343-398 (April 1) 1929

Mechanism of Action of Vaccinotherapy. M. Miraglia.—p. 343.
*Ultrafiltrable Virus of Osteomyelitis. G. Jemma.—p. 353.
*Action of Irradiated Cholesterol in Experimental Rickets in Rats. G. Vitetti.—p. 359.
*Treatment of Purulent Pleuritis in Children. C. Catteruccia.—p. 375.
Perinephritic Abscess in Child. M. D'Alessandro.—p. 385.

Ultrafiltrable Virus of Osteomyelitis.—Jemma summarizes the results of his experiments as follows: From ten patients with acute osteomyelitis, ten strains were isolated, only two of which showed osteomyelitic properties in repeated passages through animals. Filtrates of broth cultures and plasmalysates of such cultures, prepared according to the technic of Jura, when inoculated into young rabbits did not give rise to any lesions and must therefore be regarded, as far as his researches are concerned, as possessing no osteomyelitic potency. The inoculation of these filtrates and plasmalysates into various terranes, in anaerobiosis and in aerobiosis, does not cause any modification of the culture medium; hence he does not regard as demonstrated the cultivability of the virus of osteomyelitis. The deviation of complement by means of the filtrates and plasmalysates was found unadapted for the revelation of the presence of antibodies in animals treated with these substances.

Action of Irradiated Cholesterol in Experimental Rickets in Rats.—From his experiments Vitetti concludes that irradiated cholesterol does not have any beneficial effect in experimental rickets in rats; in fact, it appears to be harmful if the irradiation has been for a long period.

Treatment of Purulent Pleuritis in Children. — From his study of the literature and from his observations in his forty-one cases (17.07 per cent of mortality), Catteruccia holds that the best treatment in purulent pleuritis consists in autovaccinotherapy by the intravenous route, combined with either evacuatory punctures or simple pleurotomy. His case mortality rate (17 per cent) is low in comparison with the statistics reported by various authors in children subjected to surgical intervention (Allaria, 28; Diefraich, 47; Pirquet, 20; Israel, 70; Netter, 75; Zibell and Holt, 80, and Caprioli, advocate of thoracotomy in all cases, 22.22 per cent of mortality).

Policlinico, Rome

36: 177-232 (April 1) 1929. Medical Section

*Roentgen Therapy in Acute Stage of Epidemic Encephalitis. U. Nuvoli.—p. 177.
Acute Ataxia. F. C. da Villa.—p. 195.
Tumor of Left Frontal Lobe. V. Cantalamessa.—p. 210.
Meningococcemia Cerebrospinal Meningitis (Meningococcic Pericarditis). Zuccola.—p. 220.

Roentgen Therapy in Acute Stage of Epidemic Encephalitis.—Nuvoli emphasizes that the best results from roentgen therapy were secured in those patients who were subjected to the treatment during the first fifteen days after the onset of the disease. Intensive irradiations were given (deep therapy with highly penetrating and filtered rays). He used heavy doses of penetrating rays not only to increase the amount of deep absorption but also because a large dose of filtered rays acts best on the infiltrative elements, whether hematic or histiogenic. The spark gap was 40 cm.; the intensity of the current was 2 milliamperes; the filter consisted of 0.5 mm. of zinc and 4 mm. of aluminum; the focal distance was 23 cm. In view of the anatomic seat of the lesions, he endeavored, as far as possible, to converge the irradiation toward the basal ganglions and the mesencephalon. The irradiation was applied to five frontal fields and a bulboposterior field, each 4 by 4 cm. in area. In each field, three-fourths the erythema dose was

administered. Soon after the treatment, the patient complained usually of an exacerbation of the subjective symptoms. A severe headache (sometimes exceedingly intense) developed. Vomiting was almost constant. An anxiety state was more or less accentuated. The temperature ran high, reaching sometimes 40 C. (104 F.) and even higher. This condition may continue for from two to six days but need not cause any anxiety. The head pain is combated with cold compresses and an ice-bag. Analgesics (amidopyrine and acetylsalicylic acid) may be employed, which combat also the high temperature. The vomiting is combated with a liquid diet, cold compresses and ice to the abdomen, and small pieces of ice in the mouth. When this phase has passed, the patient begins to show gradual and continued improvement. The subjective and objective symptoms subside and finally disappear in the more favorable cases, and after about a month the patient may be said to be convalescent. The probability of complete recovery is notably diminished, the more extensive and the more grave the lesions are. Recovery depends also on the nature of the anatomic changes produced. It is evident that the destruction of nerve substance cannot be repaired by any treatment. While the radiations may act on infiltrative conditions, they cannot act on thrombotic conditions. When a thrombosis was established, the roentgen rays did not have any effect. At least 98 per cent of the grave cases of encephalitis end disastrously. Roentgen treatment of the sequelae of encephalitis was without effect, as could be foreseen.

36: 439-478 (April 1) 1929. Practical Section

Neuralgia of Sacral Plexus: Sciatic Neuralgia or Sciatica. G. Catola.—p. 439.
*Arsphenamine Treatment in Chorea. O. Paolo.—p. 445.
Sarcoma of Middle Ear. M. Silvagni.—p. 447.
Cavernoma of Floor of Fourth Ventricle. F. Camillo da Villa.—p. 449.

Arsphenamine Treatment in Chorea.—Paolo states that in the university clinic at Pavia it was decided to subject some of the patients with chorea to the common arsenic preparations and possibly various sedatives, and the remainder (the graver cases, for the most part) to exclusive treatment with arsphenamine. The latter group, consisting of ten patients, received intramuscular injections of neoarsphenamine at regular intervals of four days, the initial dose being 0.1 Gm., which was increased by 0.1 Gm. each time up to a maximum of 0.4 Gm. After each injection, the urine was examined to discover the possible appearance of abnormal components. Nothing was found in sufficient quantities to suggest any modification in the treatment. The patients ranged in age from 10 to 17 years. The dose that proved sufficient to effect the disappearance of all traces of involuntary movements was 2 Gm. divided into from eight to ten injected doses. As a rule, after the second injection, a marked attenuation of the disturbances was noted. In addition, the arsphenamines brought about a notable improvement in nutrition. The patients could be regarded as cured after an interval of from thirty to fifty days. They were not, however, dismissed at once but were retained in the clinic, so that they might be treated promptly in the event that the disturbances reappeared. That did not happen in the ten patients who received the arsphenamine treatment but it did occur in three of the patients who were given sodium cacodylate subcutaneously and solution of potassium arsenite by mouth. In one of these three patients, arsphenamine had to be employed to eliminate the involuntary movements that had reappeared after an interruption in the administration of solution of potassium arsenite, which was causing an intense headache. Though the series of cases is small, Paolo thinks that it will suffice to show the efficacy and, above all, the harmlessness of a method of treatment that is not commonly given consideration by the practitioner.

Tumori, Milan

3: 129-292 (March-April) 1929

Action of Tar in Cecum of White Rats. P. L. Badile.—p. 129.
*Production of Sarcomas by Inoculation of Embryonal Tissues and Inactivated Cancer Tissues. V. Bisceglie.—p. 139.
*Vaccine Treatment of Malignant Tumors. S. Citelli.—p. 152.
Ovarian Cancer with Metastasis in the Serous Membranes, Resembling a Mesothelioma. G. Müller.—p. 170.
Epithelial Tumors of Bladder; Anatomic Histogenetic Researches and Classification. A. Fontana.—p. 185.
*Cancer of Stomach. P. Vittorio.—p. 248.

Production of Sarcomas by Inoculation of Embryonal Tissues and Inactivated Cancer Tissues.—Bisceglie summarizes thus the results of his researches: By the simultaneous inoculation in rats of embryonal tissues and Berkefeld filtrates of rat carcinoma he was unable to produce a tumor. On subjecting rat cancer tissue to the action of chloroform (10 per cent) it became completely inactivated within three hours, so that its inoculation into animals resulted in a completely and constantly negative reaction. When twenty-five rats were inoculated simultaneously with inactivated cancer tissue and embryonal tissue, neoformations developed in two animals, which, on histologic examination, proved to be sarcomas, and which produced metastases in the lungs and in the liver. One tumor was successfully transplanted. The author concludes that, in all probability, the sarcomatous neoformations originated from embryonal elements subjected to the action of the oncogenic agent present in the inactivated cancer tissue. The tumor-producing agent is, in all probability, a chemical product elaborated from cellular elements whose metabolism has been impaired by irritative agents of various kinds.

Vaccine Treatment of Malignant Tumors.—Citelli states that, in fifteen curable cases in which he employed vaccinotherapy in a complete or almost satisfactory manner, he obtained eleven cures, the greater part of which appear likely to be permanent, and in the other four cases there was an evident prolongation of life or there were notable ameliorations. He does not consider the five cases of the second group, as these patients presented enormous tumors that had invaded the thorax and the abdomen and hence were too far advanced to be curable. The author never observed with his treatment rapid and grave local and general exacerbation, as is frequently noted following treatment with roentgen rays and radium.

Cancer of Stomach.—Vittorio reports that, at the institute of pathologic anatomy in Milan, in 1,550 necropsies, 227 cases of cancer (14.64 per cent) were found, and 100 of these were cancer of the stomach. The distribution of the 227 cancers was as follows: stomach, 100 cases; uterus, fifty-five; intestine, eleven; esophagus, ten; pancreas, eight; bladder, seven; liver, six; ovary, five; breast, five; lungs and bronchi, four; vagina, four; larynx, three; pharynx, two; tongue, two; vulva, two; thyroid, one; biliary tracts, one.

Brasil-Medico, Rio de Janeiro

43: 581-612 (May 25) 1929. Partial Index

*Syphilitic Bronchitis. A. Valerio.—p. 587.
*Modifications in Coagulability of Blood During Yellow Fever. J. Vellard.—p. 588.

Syphilitic Bronchitis.—Valerio says that the lungs, pleura and bronchi are the seat of syphilis more frequently than is believed to be the case. In children the syphilitic lesions of these organs appear after the age of 6 years, and in adults they appear fifteen or twenty days after the chancre develops. The bronchopulmonary syndromes of secondary syphilis reveal the presence of a diffuse bronchitis. In two of his cases the author obtained excellent results with mercury treatment. The bronchopulmonary syndrome of tertiary syphilis includes several conditions, among them pulmonary syphilis, of which the syphiloma is characteristic. The author observed four such syphilomas. The diagnosis was based on the history and symptoms of syphilis, the localization of the lesion (which regularly is at the central part or base of the lung), and the absence of tuberculosis. The tentative treatment with mercury is also of diagnostic value.

Modifications in Coagulability of Blood During Yellow Fever.—Vellard studied the modifications in the coagulability of the blood in twenty-five patients at the second, third and fourth day stage of yellow fever, and in twelve convalescents. From the results obtained by him the author concludes that: The variations in the coagulative power of the serum are irregular and similar to those which have been observed in normal persons. The coagulability of the plasma on the second day of the disease presented, in all patients, a steady diminution. It reached a minimum about the seventh day and returned to normal during the convalescence. This diminution in the coagulability was caused by the presence of large amounts of antithrombin in the circulation. The diminution in the coagulability of the plasma, which heretofore has been observed only

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in yellow fever, may be of value in the early diagnosis of other infections. In experimental yellow fever in *Macacus rhesus*, the alterations in the coagulability of the blood are of the same nature as those in man but they appear later and are less marked.

Semana Médica, Buenos Aires

36: 1285-1362 (May 23) 1929

Pyelography and Pyeloscopy in Diagnosis of Renal and Pararenal Diseases. J. Salleras, A. Astraldi and A. von der Becke.—p. 1285.
*Central Abscesses of Tongue. J. C. Bidart Malbrán.—p. 1332.
Posttraumatic Fistulous Frontal Sinusitis. H. Zubizarreta and P. Lernoud.—p. 1336.
*Stellate Fracture of Skull with Sinking of Glabella. D. A. Pasqualis. —p. 1340.
Total Transposition of Viscera: Heterotaxia. D. Vivoli and L. R. Zunino. —p. 1341.
Multiple Fibromas of Uterus Complicating Pregnancy: Cesarean Section and Hysterectomy. S. E. Bermann.—p. 1345.

Central Abscesses of Tongue.—Bidart Malbrán's patient, aged 34, after recovering from a putrid bronchitis developed an inflammation of the tongue. The tongue filled most of the oral cavity and the patient could neither speak nor eat. An abscess was found in the middle of the tongue. Under local anesthesia it was opened and 5 cc. of inspissated pus was evacuated. The cavity was treated with hydrogen dioxide and drained. The patient recovered. After a week, however, a second abscess appeared more anteriorly. The administration of vaccines in massive doses was followed by a complete disappearance of the swelling.

Stellate Fracture of Skull with Sinking of Glabella.—Pasqualis reports a case of severe cerebral trauma caused by the falling of metal blinds on the head of the patient. This caused a stellate wound with sinking of the glabella. The patient lost a large amount of blood and had hematemesis of the cerebral type. Lumbar puncture yielded a hemorrhagic fluid. A piece of the skull 3 cm. square was sunken, and it was so embedded in the brain that its mobilization was difficult. The author finally succeeded in bringing back the sunken piece of bone to its original level. The head was then covered with iodoform gauze and an ice bag was applied. The patient recovered and is in good health two years after the accident.

Archiv für klinische Chirurgie, Berlin

155: 365-546 (June 1) 1929

Results of Treatment of Large Defects of Capsule of Knee Joint. F. Kroh.—p. 365.
*Results of Cervical and Lumbar Sympathetic Ramicotomy in Spastic Paralysis. E. Hesse.—p. 405.
Experiences with Poussepp's Operation for Syringomyelia. W. A. Oppel. —p. 416.
Pelvirenal and Pyelovenous Backflow. H. Boeminghaus and A. Hendriock. —p. 435.
Roentgenologic Study of Resorption of Contrast Solutions from Hollow Viscera, Especially the Kidney, Kidney Pelvis and Ureter in Conditions of Acute Stasis. H. Boeminghaus.—p. 451.
Actual Reaction of Body Fluids (Joint Exudates and Secretions). A. Beck and H. J. Lauber.—p. 469.
Treatment of Echinococcus Cysts of Lung. Copello.—p. 486.
*Actinomycosis of Submaxillary Salivary Gland: Etiology of Kuettner's So-Called Salivary Gland Tumors. H. Ganner.—p. 495.
*Roentgen Examination in Cases of Gas Edema. M. Sgalitzer.—p. 509.
*Gas Edema in Peace Times: Treatment. P. Moritsch.—p. 515.
Diverticulum of Esophagus. L. P. Mariantschik.—p. 533.

Results of Sympathetic Ramicotomy.—Hesse presents a brief review of the literature and reports the results in eight cases in which this operation was performed. His were cases of spastic paralysis, four each of the upper and of the lower extremity. In the first group, an excellent result was obtained in one case; slight improvement in two cases, and failure in one case. In the second group three good results were obtained and in one case slight improvement. He cautions against overenthusiasm in resorting to the operation and in estimating the results. It has a place, but it is not a universal treatment in all cases.

Actinomycosis of Submaxillary Salivary Glands.—Ganner stresses the need for a microscopic examination of biopsy specimens before one can make a diagnosis of this condition. In the case cited, the preoperative diagnosis was "tumor." He says that in these cases of actinomycosis of the submaxillary gland, the lesion spreads throughout the whole gland as a proliferative inflammation; therefore in every case of chronic inflammation of these glands, biopsy specimens should be examined very carefully for actinomycotic foci as otherwise one might be missed and the real nature of the condition overlooked. In fact, he rather leans to the view that every chronic inflammatory tumor of these glands is an actinomycosis unless otherwise proved.

Roentgen Examination in Cases of Gas Edema.—Sgalitzer emphasizes the value of making a roentgen examination in all cases of shot wounds because it is the only way one can make a diagnosis of gas edema with certainty. He relates a case in which neither crackling nor tympanism could be detected; hence gas edema was not suspected. Roentgen examination disclosed the presence of gas bubbles in the tissues. Incision released the gas, the temperature dropped quickly and the patient recovered. *Bacillus phlegmonis-emphysematosae* was found on examination of the released fluids. The procedure has special diagnostic value in cases of deeply lying infections.

Gas Edema in Civil Practice.—Moritsch feels that the steadily increasing number of cases of gas edema in civil practice calls for more thorough and vigorous treatment. Early diagnosis, with frequent, even routine, use of the roentgen rays, prompt injection of a reliable serum in sufficient quantity, as a prophylactic, and frequent injection, every day, of very large doses of serum in the treatment will reduce the incidence, and especially the mortality, of gas edema. The increasing frequency of street accidents is responsible for the greater incidence, and ineffective treatment is responsible for the high mortality from gas edema. Early diagnosis is made possible by resorting to roentgen examination, gas bubbles being looked for in the deeper tissues.

Deutsche medizinische Wochenschrift, Berlin

55: 943-984 (June 7) 1929

Formation of Theories in Clinical Medicine. F. Kraus.—p. 943.
Fundamentals of Psychotherapy. Von Bergmann.—p. 946.
*Present Status of Etiology, Clinical Aspects and Treatment of Influenza. P. Krause.—p. 948.
Studies in Climatic Conditions on Dutch Coast. O. Kestner.—p. 949.
*Harmful Effects of Insulin in Circulatory Insufficiency: Influence on Carbohydrate Metabolism. Reinwein.—p. 951.
*Diagnosis, Etiology and Prognosis in Extrasystole. H. Rosin.—p. 953.
*Gastric Secretion in Diagnosis of Cancer of Stomach. M. Ehrenreich. —p. 956.
Gastritis in Relation to Disturbances in Innervation and Circulation. H. Eggers.—p. 957.
*Time for First Feeding of the New-Born. W. Reiprich.—p. 959.
Localization of Virus of Cowpox in Blood of Guinea-Pigs Infected with Vaccine Lymph. Hackenthal.—p. 960.
Diagnosis of Paranephritic Abscess. H. Curschmann.—p. 961.

Study of Influenza.—Krause reports his experiences during the influenza epidemic from December, 1928, to March, 1929. He observed that in nearly all cases the disease was communicated from one person to another. Blood tests which were performed on 172 patients revealed the presence of the influenza bacillus in only 8.7 per cent of the cases. However, in spite of the fact that in the majority of the cases Pfeiffer's bacillus could not be detected, the author thinks that this bacillus is nevertheless the etiologic factor in influenza. He also points out that a bacillus closely resembling it can often be found in patients with other diseases; he observed it during a whooping cough epidemic. In patients in whom the influenza was complicated with pneumonia, pneumococci and sometimes streptococci also could be found. The symptoms that commonly characterized the cases of acute influenza were headache, backache and catarrh of the upper air passages. The most frequent complication was angina, which was observed in twenty-three out of 111 cases. Gastro-intestinal disturbances were noted in four instances. In these patients the disease showed symptoms that otherwise characterize typhoid. But neither a swelling of the spleen nor typhoid bacilli could be detected. One patient showed appendicitis-like symptoms. After several days they disappeared and his illness took the course of an influenza. Pneumonia developed in ten cases. With the exception of one patient, who was in poor general condition, all of these patients recovered. Other complications were exudative pleuritis, empyema, icterus catarrhalis with swelling of the liver and suppurative otitis media. Concerning the therapy the author states that even those patients in whom the disease takes a milder course should go to bed. The diet should be carefully regulated and should be rich in fat and protein. Hydrothera-

peutics in the form of cold applications or ice bags are helpful to counteract the severe headaches. Of the medicaments, salicylic preparations such as sodium salicylate and acetylsalicylic acid generally give good results. During the period of convalescence, the patients should be in the open air as much as possible. Change to a sunny climate is also helpful, especially for persons suffering from severe laryngitis.

Harmful Effects of Insulin in Circulatory Insufficiency: Influence on Carbohydrate Metabolism.—Reinwein gives two case reports that illustrate the harmful effects of insulin injections in patients with circulatory insufficiency. Both patients had been treated for diabetes. They had been given large quantities of insulin. However, this had not improved their condition but had caused retention of water. Their condition became steadily worse and they were brought to the clinic with the diagnosis of diabetic coma. Careful observation of both patients proved that they were suffering from severe circulatory disturbances. Following strict limitation of the intake of food and fluids, the patients' condition improved gradually. Although they were not given any more insulin injections, symptoms of a beginning coma did not become manifest. These cases prove that the insulin treatment not only failed to improve the condition of the patients but even endangered their condition by causing disturbances in the water metabolism and by intensifying the cardiac and circulatory disturbances.

Diagnosis, Etiology and Prognosis in Extrasystole.—Rosin points out that extrasystole is one of the most frequent forms of cardiac disturbances. It may generally be detected by physical methods of examination. In more complicated cases, however, the graphic methods, as electrocardiography, graphic representation of the venous pulse or sphymography, are often necessary for the differential diagnosis. The author distinguishes between auricular and ventricular extrasystole, between the essential and the symptomatic form, and between the solitary and the multiple extrasystole. In discussing the etiology he mentions heredity, sexual influences, great exertions and disturbances in the digestive tract. If the extrasystole is not complicated by other disturbances, the prognosis is favorable so far as it does not seem to shorten the life of the patient. However, there are seldom prospects of a complete cure. No effective therapy has as yet been found.

Gastric Secretion in Cancer of Stomach.—Ehrenreich discusses the diagnostic value of examination of the gastric secretion. He asserts that the detection of free hydrochloric acid is of no practical value for the differential diagnosis of cancer of stomach. The symptom of the "progressive disappearance of the secretion" is the most important sign for a beginning carcinoma. As long as no special method for roentgenoscopy has been perfected, the best way to detect the progressive disappearance of the secretion is by fractional removal by means of an indwelling stomach tube. If the ordinary catheter is used, it is necessary to vary the time of the removal of the gastric secretion. In case of hyperacidity it should be done about ninety minutes after the test breakfast; in other instances from thirty to forty minutes after. The roentgenogram and the continuous auscultatory control of the splashing sound of the stomach give an approximate indication of the condition of the gastric secretion. Achylia gastrica often shows a characteristic roentgenogram which is distinguished by the following features: absence of the layer of gastric juice, small stomach, intense shadow and a quicker emptying of the stomach.

Time for First Feeding of the New-Born.—Reiprich points out that opinions are still divided as to when the infant should be put to the breast for the first time. Some obstetricians advise that the suckling should begin from twelve to fourteen hours after birth, while others prefer to postpone the first suckling to twenty-four hours post partum or even later. The author made observations in 400 cases. In all of these the confinement had been spontaneous and without complications, and the infants were fully developed. Two hundred of the new-born were put to the breast from twenty-four to thirty-one hours after birth; in the other 200, the suckling was begun, according to the older method, from twelve to twenty hours after birth. On the basis of his observations the author comes to the conclusion that the older method is the less advantageous. The infants who are put to the breast twenty-four hours after birth, or later, show a more rapid gain in weight and their general condition is better than that of infants who are suckled twelve hours after birth. The "late" method seems also more advantageous for the mother, who has a better chance of regaining her strength during a longer intermission between confinement and nursing. The author recommends this method for general application.

Klinische Wochenschrift, Berlin

8: 1009-1056 (May 28) 1929

Nutrition and Action of Thyroid. I. Abelin.—p. 1009.
Influencing of Basal Metabolism Through Thalamencephalon. E. Grafe and E. Grünthal.—p. 1013.
New Psychophysical Law. H. Hahn.—p. 1016.
Evidence That the So-Called Pernicious Anemia in Rats (Bartonella Anemia) and Biermer's Anemia are Not Identical. H. Neumann.—p. 1017.
*H. Kahn's Method for Treating Carcinoma with Bismuth. F. Lasch and A. Neumann.—p. 1021.
*Practical Value of Besredka's Reaction for Tuberculosis. A. Grumbach and A. J. Werner.—p. 1022.
*Idiosyncrasy Toward Asparagus: Research in Cutaneous Allergy. B. Hajos, Bernward and B. H. U. Mohrmann.—p. 1024.
Participation of Various Organs in Regular Changes of Distribution of Leukocytes. E. F. Müller, W. F. Petersen and R. Hölscher.—p. 1027.
Technic of Fixation of Complement in Gonorrhea. J. van der Hoeden.—p. 1028.
Titrimetric Microdetermination of Phosphorus in Serum and in Cerebrospinal Fluid. K. Samson.—p. 1029.
Relation Between Specific Dynamic Action and Sympathetic Nervous System. G. Lami.—p. 1030.
Lipodystrophy, Abderhalden's Reaction and Thalamencephalic and Genital System. H. Schlau.—p. 1031.
Hoof and Mouth Disease and Its Significance for Animal and Man. K. Wagener.—p. 1032.

Kahn's Method for Treating Carcinoma with Bismuth.—Lasch and Neumann give a report on eighteen cases of carcinoma. In all patients the process was progressive and inoperable. Kahn's method of bismuth injections combined with roentgen irradiation was employed in eight cases. The other ten patients were given only bismuth treatments. The combined roentgen and bismuth therapy effected a temporary improvement in one case. In a case of cancer of the mamma, in which only bismuth injections had been given, the cancerous growth decreased in size. The bismuth preparation was apparently agreeable to all patients. Signs of toxicity did not become manifest. In the majority of these cases, however, this treatment was of no avail. All patients, with the exception of three, died shortly afterward.

Practical Value of Besredka's Reaction for Tuberculosis.—Grumbach and Werner report the results of Besredka's test, which was performed on 1,167 patients with various diseases. Among this number were 330 persons who gave a positive reaction, and in 143 of these cases, the clinical examinations substantiated the positive reaction. In 187 instances the test gave positive indications, whereas the clinical examinations did not reveal the existence of a tuberculous process. The authors advise that in such cases the test as well as the clinical examination should from time to time be repeated. It also became evident that Besredka's reaction may be negative in cases of active tuberculous processes. In tabular reports the authors show the value of temperature curves and of sedimentation reactions for diagnostic purposes. They conclude that Besredka's reaction in combination with other methods is a valuable aid in the diagnosis of tuberculosis.

Idiosyncrasy Toward Asparagus: Research in Cutaneous Allergy.—A case of dermatitis caused by asparagus is described by Hajos et al. A woman, aged 34, owner of a small asparagus farm, complained of an itching eczema on the hands and arms. Following the interruption of her activity and after the application of ointments, the dermatitis disappeared. However, when she resumed her work on the farm, it reappeared. The anamnesis revealed that in the previous year she had suffered temporarily from an eczema. Before that she had never been troubled, although she had been active on the asparagus farm for the last twelve years. When she came to the hospital, the dermatitis had spread over all parts of her body that were not covered by clothing. The skin was red and showed infiltrations and numerous darker nodules and

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blisters. She complained of a severe itching. Epicutaneous applications with asparagus proved that the hypersensibility extended over her whole body. The same tests were also made on a person who had no idiosyncrasy toward asparagus. In this case no cutaneous reactions became evident. Experiments were made to determine whether the woman who suffered from the dermatitis showed the same sensitiveness toward other substances. All these tests gave negative results. Following the application of ointments, the dermatitis gradually healed. After the patient had recovered, it became evident that the eating of asparagus caused neither eczematous eruptions nor other disturbances. The authors attempted a desensitization by epicutaneous application of concentrated aqueous extracts of asparagus. They commenced with preparations of a lower concentration and gradually increased the strength of the extract. However, the woman left before the treatment had been completed. The authors further investigated the problem of idiosyncrasy toward asparagus and of cutaneous allergy by experiments on animals and on a man.

Medizinische Klinik, Berlin

25: 895-932 (June 7) 1929

*Differential Diagnosis of Tumors of Lung. R. Cobet.—p. 895.
Sedimentation of Red Blood Corpuscles. F. Reiche.—p. 899.
Technic of Milk Injections. L. von Liebermann.—p. 901.
Experiences with Antitoxic Coliserum in Suppurative Processes of Abdominal Cavity. K. Hennings.—p. 902.
Causes, Symptoms, Prognosis and Treatment of Injuries of Crucial Ligaments. P. Caan.—p. 904.
Partial Megalodactylia. M. Kaufmann.—p. 907.
*Diagnosis of Thrombosis of Splenic Vein. L. Villa.—p. 908.
Congenital Aplasia and Hypoplasia of Kidney. C. Hofer.—p. 909.

Differential Diagnosis of Tumors of Lung.—Cobet asserts that the most common tumors of the lung are the bronchial carcinomas. On account of the multiformity of the clinical aspects, the diagnosis is often difficult. It is generally based on more or less uncertain symptoms. In the beginning stages of a tumor, the methods of physical examination seldom reveal any abnormality. Anemia does not usually appear with pulmonary tumors, but examination of the blood often reveals eosinophilia. Clubbed fingers may be noticed in some instances; however, they are not typical for all cases. A protrusion of the wall of the chest due to the tumorous growth occurs comparatively seldom. The most characteristic symptom is dyspnea. In cases of bronchial stenosis and in pleuritis without increasing temperature, a tumor of the lung may be suspected. Significant for a correct diagnosis are also metastases, which generally develop either in the subclavicular and axillary lymph nodes or in the vertebrae. The author further discusses diseases in which the symptomatology greatly resembles that of tumors of the lung and he enumerates the signs which aid in the differential diagnosis. These diseases are chronic pneumonia, pulmonary tuberculosis, syphilis of the lung, actinomycosis, abscess or gangrene of the lung, echinococcosis, primary pathologic disturbances of the esophagus, aortic aneurysm and cardiac insufficiency.

Diagnosis of Thrombosis of Splenic Vein.—In order to determine whether splenomegaly is due to a thrombosis of the splenic vein or to changes in the parenchymal structure, Villa advises that patients in whom circulatory disturbances of the splenic vein may be suspected be given an injection of 1 mg. of epinephrine. Whenever the splenomegaly is due to thrombosis of the splenic vein, the epinephrine effects a contraction of the enlarged organ. This contraction may then be detected with the aid of the ordinary diagnostic methods and with roentgenoscopy. At the same time the volume of the circulating blood increases considerably, because large amounts of blood are forced out of the spleen. This blood consists mostly of cells. In cases in which the splenomegaly is due to structural changes in the spleen, the contraction of the organ is not so marked after the epinephrine injection. Consequently this diagnostic method makes it possible to differentiate between the two forms of splenomegaly, and in the event that it is due to thrombosis of the splenic vein, it clears the diagnosis before an exploratory laparotomy has been performed. Another advantage is that the thrombosis becomes evident and can be properly treated before the hemorrhagic period, for when a hemorrhage occurs it is usually fatal.

Münchener medizinische Wochenschrift, Munich

76: 867-906 (May 24) 1929

*Dietary Treatment of Tuberculosis of Skin. A. Jesionek.—p. 867.
*Surgical Treatment of Bronchiectasis. F. Krampf.—p. 870.
Hemolysis Following Transfusion of Blood from Universal Donor. O. Thomsen.—p. 873.
Surgery of Extremities and Medical Decisions in Accident Insurance. H. Bürkle de la Camp.—p. 874.
New Method for Treatment of Progressive Impairment of Hearing Caused by Permanent Closure of Auditory Tube. K. Kunc.—p. 877.
*Powdered Sweet Cookies Used as Admixture to Milk in Feeding of Infants. L. Moll.—p. 878.
Pathogenesis of Agranulocytosis. W. Hueber.—p. 881.
*Familial Occurrence of Postpartum Hemorrhages in Four Sisters. W. Embacher.—p. 882.
Unreliability of Bacteriologic Examinations for Termination of Quarantine of Scarlet Fever Patients. L. Klotz.—p. 882.
Diagnosis and Therapy of Chronic Posterior Parametritis. E. Kehrer.—p. 884. C'cn.

Dietary Treatment of Tuberculosis of Skin.—Jesionek directs attention to the therapeutic value of a salt-free diet in patients with tuberculosis. He discusses the dietary treatment that was first introduced by Gerson and that was later perfected and applied by Sauerbruch and Herrmannsdorfer. He gives a scientific explanation of this treatment. His article treats mainly of the chemical and biologic action of the parenchymal cells of the skin, and of the substances that influence their activity. He comes to the conclusion that sodium ions and chlorine ions weaken certain chemical action of these cells, and that the reduction of the sodium chloride content, by means of a salt-free diet, enables the cells to counteract the tuberculous process.

Surgical Treatment of Bronchiectasis.—Krampf states that in recent years the surgical treatment of bronchiectasis has made essential progress and has brought good results in many cases. Nevertheless, there are still many physicians who at first treat bronchiectasis with the more conservative methods, and who resort to surgical treatment only if internal therapy fails. In such cases the general condition of the patient is often so poor that the surgical treatment involves great dangers. The author discusses the pathogenesis of bronchiectasis, and he differentiates between the congenital and the secondary or acquired forms. He then names the various surgical methods that may be used; he discusses their advantages and shortcomings and mentions the condition in which they are indicated. Pneumonotomy, an effective but also a dangerous method, should be employed with great discrimination. Sauerbruch's pressure method and the extirpation of the diseased lobe are the other two treatments evaluated by the author.

Powdered Sweet Cookies Used as Admixture to Milk in Feeding of Infants.—It is pointed out by Moll that if infants are fed exclusively with cow's milk, they are often subject to nutritional disturbances. In spite of the fact that the infants receive a sufficient quantity of milk, and sometimes even an oversupply, they become pale, weak, constipated and emaciated. Researches were conducted to investigate the causes of these disturbances. It was found that these conditions could be remedied by diluting the milk and by replacing the loss in calories by adding carbohydrates in the form of sugar and flour. However, if flour is added even in minimal quantities, the mixture becomes so thick that it is impossible to feed the infant from the bottle. The author found that if the flour is added in the form of powdered cookies, it may be given in a higher concentration, without becoming pasty. The preparation that he describes contains wheat flour, malt flour and various salts, such as chlorides, carbonates and phosphates. While it is being cooked, sugar and milk are added. This gruel may be fed to infants after the third month. It may constitute two or three of the five daily feedings. In breast-fed infants this gruel may be added for an additional feeding, whenever the milk supply of the mother is not sufficient. In infants suffering from diarrhea this mixture may replace milk entirely, until the disturbance is cured. The author gives detailed instructions for the preparation of the gruel.

Familial Occurrence of Postpartum Hemorrhages in Four Sisters.—Embacher observed postpartum hemorrhages in four sisters. The first women gave birth to three children at intervals of two and three years. In each case profuse hemor-

rhages occurred after birth. She died a few weeks after the birth of her third child. Her sister had an abortion in the fourth month, which also was followed by abnormal hemorrhages. Another sister, who was pregnant twice, suffered profuse hemorrhages in both instances. A fourth sister also had abnormal hemorrhages during her first puerperium. All the children born to these women were healthy and well developed. The ages of the mothers varied between 16 and 25. Pelvimetry revealed a normal pelvis in all cases. Abnormalities of the placentas could likewise not be found. Investigations revealed that the mother of these women had had nine normal confinements. In the family of the father, profuse postpartum hemorrhages were likewise unknown. The fact that these hemorrhages occurred in four sisters, and in all of their confinements, indicates, nevertheless, that constitutional factors were involved.

76: 947-986 (June 7) 1929

Indications for Opening of Mastoid Process in Acute Otitis Media with Special Consideration of Results of Early Operations. L. Haymann. —p. 947.
*Medical or Surgical Treatment of Gastric and Duodenal Ulcers. M. Friedemann.—p. 951.
Clinical and Social Aspects of Cases in Which Psychic Defects Remain After Fever Treatment of Patients with Paresis. K. Pönitz.—p. 953.
Experiences with Tribromethanol Narcosis in Gynecology. W. Flessa. —p. 955.
Practical Value of Meinicke Turbidity Reaction. C. Stern.—p. 957.
Advantages of Conservatism in Obstetrics. Durlacher.—p. 959.
Dosage and Method of Administration of Irradiated Ergosterol. A. Kollmann.—p. 961.
Use of Irradiated Ergosterol for Treatment of Nongonorrheal Leukorrhea. A. W. Bauer.—p. 962.
Olive-Pointed Sound with Detachable Filiform Guide for Examination of Urethra. F. Schlagintweit.—p. 962.
Uselessness of Diapositives for Roentgen Diagnosis of Pulmonary Tuberculosis in Children. H. Lossen.—p. 963.
*Spontaneous Passage of Enormous Gallstone. H. Schotter.—p. 963.

Treatment of Gastric and Duodenal Ulcers.—Friedemann refers to an article by Otten, who advises medical treatment for all gastric and duodenal ulcers except the perforating ulcers or those which cause an obstruction of the pylorus. Only for the latter does he advise surgical treatment. Friedemann, who gained his experiences in the observation of several thousand cases of gastric and duodenal ulcers and who operated on 1,500 patients for such ailments, disputes Otten's strict limitation of the surgical treatment. He asserts that for bleeding ulcers of the stomach or of the duodenum, operation is the only effective treatment. Surgical therapy is likewise advisable for the large deep lying ulcers that perforate into the liver or the pancreas. Whether ulcers for which the medical treatment brings temporary relief, but which reappear again from time to time, should be treated surgically is not always easy to decide. However, many authorities seem to be in favor of the operative treatment for such cases. The author also points out that cancer develops in the ulcers. He describes three cases in which he performed an operation for ulcer and in which the histologic examination revealed carcinoma. Because cancers often simulate ulcers, he advises that, whenever the medical treatment does not bring the desired results, the physician should consult a surgeon and if the diagnosis cannot be completely cleared in any other way, an exploratory laparotomy should be performed.

Spontaneous Passage of Enormous Gallstone.—Schotter reports the case of a woman, aged 60, who for several years had been troubled with constipation. Occasionally she had had attacks of abdominal pains which radiated toward the back and which were followed by fainting spells and by cramps resembling labor pains. For two or three days after these attacks she felt weak. Vomiting, rising temperature, darkened urine and icterus were never observed. The diagnosis of gallstones was therefore not entirely clear. The spontaneous passage of the stone finally occurred after a severe attack of colic which lasted for thirty-five hours. After that the patient felt much relieved and the colics did not recur. The stone was of oval shape. It measured 7.5 cm. in length, 4.5 cm. in width and 4.3 cm. in thickness, and weighed 55 Gm. Its crystalline nucleus consisted of pure cholesterol. In the parts surrounding the nucleus, interrupted layers of calcium carbonate alternated with layers of cholesterol.

Wiener klinische Wochenschrift, Vienna

42: 765-796 (June 6) 1929

*Pathogenesis and Treatment of Spasms of Esophagus and of Cardia. J. Pal.—p. 765.
Evaluation of Various Tests for Syphilis by Serologic Research Committee of League of Nations Meeting in Copenhagen in 1928. R. Müller. —p. 767.
*Covering of Complicated or Large Ventral Hernias. F. Demmer.—p. 772.
Qualities of Secondary Sounds Perceptible in Auscultation During Disturbances in Respiratory Organs. A. Winkler.—p. 775.
Use of Bacterial Filtrates in Treatment of Acute Inflammatory Surgical Diseases. P. Pick.—p. 777.
Static-Dynamic Decompensation in Lordosis, Kyphosis, Scoliosis and Paralytic Forms of Thorax. M. Jungmann.—p. 779. C'tn.
Surgical Complications in Dengue Fever. D. Kokoris.—p. 781.
Dietary Treatment in Diabetes. R. Bauer.—p. 782.
Significance of Blood Picture for General Practitioner. G. Spengler.—p. 784.

Pathogenesis and Treatment of Spasms of Esophagus and of Cardia.—In discussing the pathogenesis of spasms of the esophagus, Pal directs attention to the peculiarities of the musculature and the innervation. Occasionally the spasms of the esophagus are, however, psychogenous. The author further discusses various forms of cardiospasm. He points out that, in order to decide the therapeutic method for each individual case, the etiology of the disturbance should be considered. He evaluates the various medicaments that are employed in the treatment of spasm of the esophagus, such as papaverine and other benzyl compounds, and camphor, atropine and epinephrine. Good results have also been attained with diathermy. Mechanical dilation, by means of a dilating bougie, has proved effective.

Operation for Large Ventral Hernias. — Demmer describes an operation for hernia which he performed in fourteen cases. In thirteen instances it gave good results. He characterizes it as a plastic operation in which the fascia that surrounds the hernial aperture, especially the anterior layers of the sheath of the recti, is used to cover the hernia. This "folding-door" method was first employed by Brenner. The author asserts that it is the simplest, the least dangerous and the quickest of all the plastic operations for ventral and umbilical hernias.

Hygiea, Stockholm

91: 337-368 (May 15) 1929

*Cancer of Ductus Choledochus. H. Blomström.—p. 337.
Roentgen Examination of Size of Kidneys, Particularly in Contracted Kidney. J. Tillgren and E. Hakanson.—p. 345.

Four Cases of Cancer of Ductus Choledochus.—Blomström considers the constant positive blood reaction in the feces in his cases an important symptom. If in relatively recent jaundice with positive Weber reaction, gastro-intestinal cancer with metastases in the liver can be excluded, cancer in the ductus choledochus may be suspected. Exploratory laparotomy is indicated. In recurring attacks resembling gallstone colic this localization of cancer should be borne in mind. The author believes radical operation possible if done early.

Ugeskrift for Læger, Copenhagen

91: 479-498 (June 6) 1929

*Increase of Weight in Liver Therapy of Pernicious Anemia. E. Meulengracht and S. Holm.—p. 479.
*Achylia in Pernicious Anemia After Liver Therapy: Investigations After Injection of Histamine. A. H. Johansen.—p. 480.
Pathogenesis and Resorption of Transudates and Exudates in Pleura. P. Iversen and A. H. Johansen.—p. 483.

Increase in Weight in Liver Therapy of Pernicious Anemia.—In Meulengracht and Holm's thirty-six patients treated with whole liver, whole liver and liver extract, or liver extract, regular weighings were made. In their opinion the increase in weight after liver diet is specific for pernicious anemia and is connected with compensation by the treatment for a deficiency present in the organism in greater or less degree, probably for a long time.

Achylia in Pernicious Anemia After Liver Therapy.—In Johansen's nineteen cases of pernicious anemia with achylia, treated for from three to seventeen months with liver or liver preparations, all other symptoms disappeared or were noticeably improved but the achylia persisted. No free hydrochloric acid was found in the gastric secretion, even with the use of histamine.

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